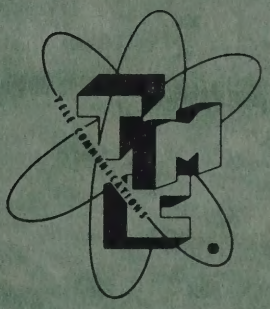
NAVSHIPS 93161

INSTRUCTION BOOK

for

RADIO TRANSMITTER MODEL GPT-750 (AN/URT-17)



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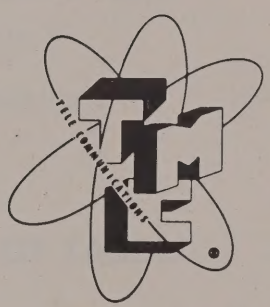

NOTE: WHEN USING THE MODEL GPT-750(D), SEE THE INSTRUCTION MANUAL FOR THE MODEL SBE WHICH ACCOMPANIES THIS MANUAL.

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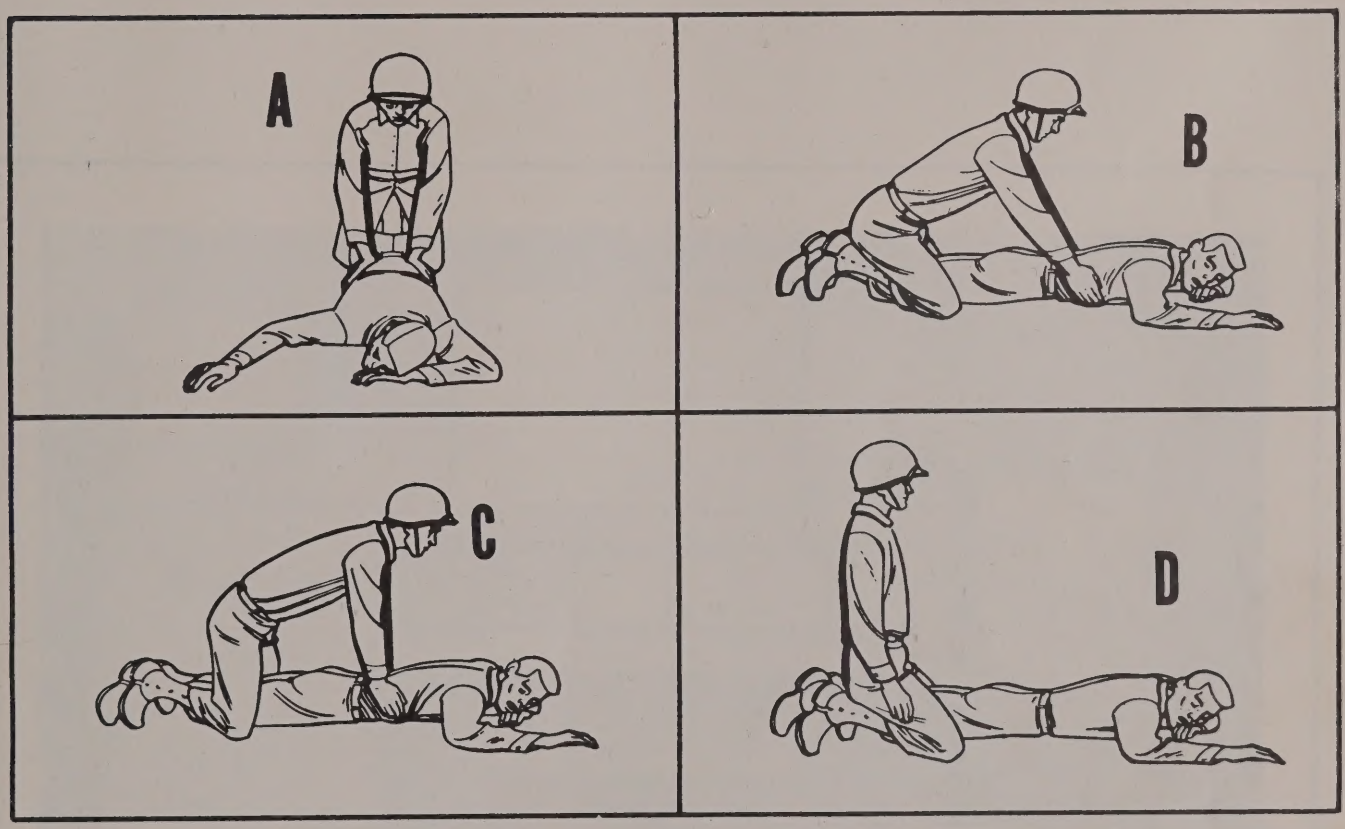
WARNING!

THE VOLTAGES USED IN THIS EQUIPMENT ARE SUFFICIENTLY HIGH TO ENDANGER LIFE: PRECAUTIONS HAVE BEEN OBSERVED IN THE DESIGN TO SAFEGUARD THE OPERATING PERSONNEL. POWER SHOULD BE REMOVED COMPLETELY AND THE HIGH VOLTAGE CAPACITORS IN THE POWER SUPPLY DISCHARGED.

RESUSCITATION PROCEDURE

IN CASE OF ELECTRIC SHOCK



A. CORRECT POSITION: Operator's elbows straight and locked. Victim's face turned away from bent elbow and resting on back of hand.

B. FORWARD SWING AND POSITION OF HANDS. Little finger rests on last rib.

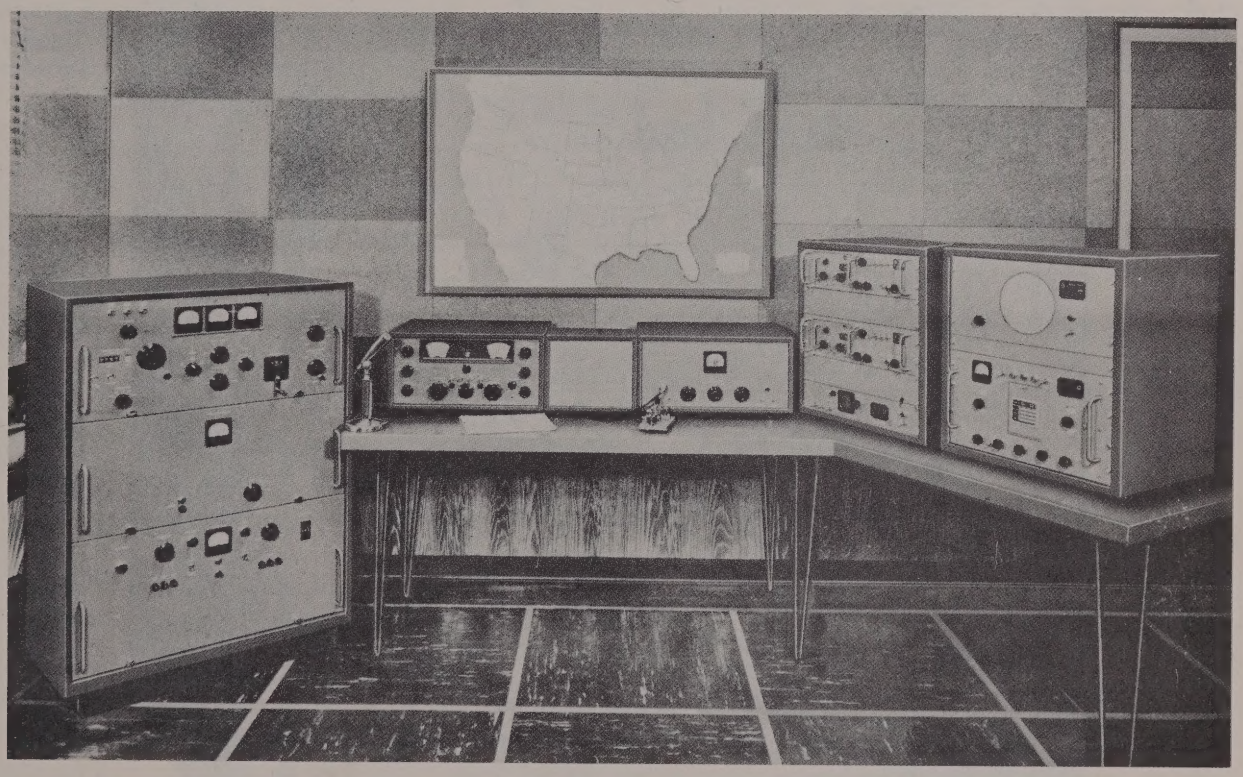
C. DOWNWARD PRESSURE. Arms and thighs vertical.

D. REST POSITION. Operator releases pressure suddenly, swings back on heels, and rests for two seconds.

The Series 5600 Package shown below includes everything necessary for a complete HF receiving and transmitting installation, including:

750/1000 watt bandswitching transmitter 2-32 mc, for phone, cw, tone and frequency shift teletype; general coverage receiver; semi-remote transmission control; frequency shift keyer and converter; fixed tuned diversity receiver; all accessories, such as antennas, microphone, key, speakers and head phones. Teletype send/receive equipment may be added as desired.

. . . Packaged . . .



SERIES 5600

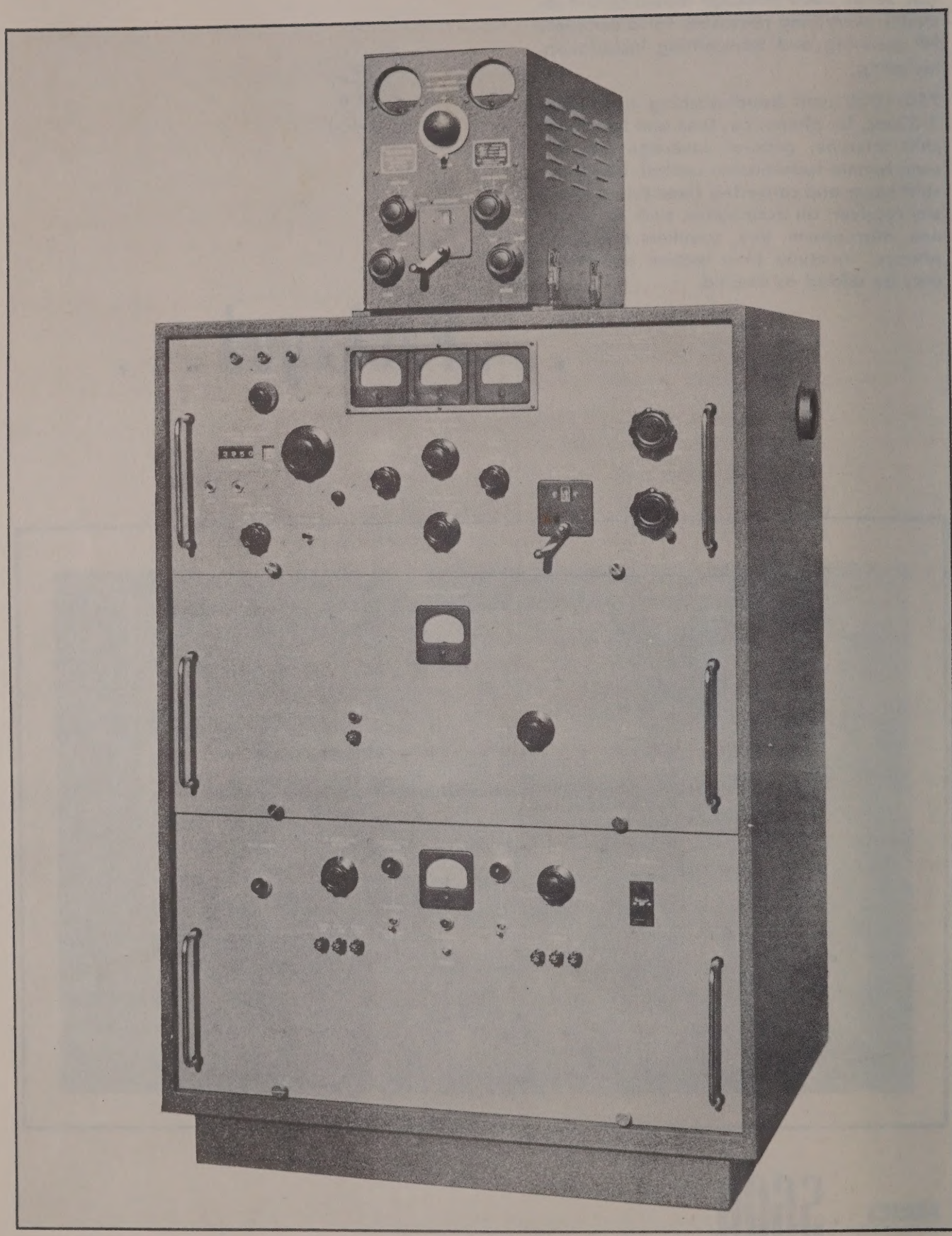


Figure 1-1. Front View, Model GPT-750(B) with Model TAC Mounted.

SECTION I
GENERAL DESCRIPTION

1. PURPOSE AND BASIC PRINCIPLES

The TMC Radio Transmitter, Model GPT-750, was designed for radio telephone, telegraph, frequency shift and facsimile operation on all frequencies within the range of 2 to 32 Mcs. This transmitter, with its band switching feature, extended range and higher power, completely obsoletes older transmitters.

This transmitter will provide 1000 watts output CW or FS, 750 watts output radio telephone, and 750 watts output PEP Single Sideband for continuous commercial service.

The equipment is constructed on a building block basis and combinations are available to provide for all of the commonly used services. See Table 1-1.

The GPT-750 may be used, because of its pi-network, to load any properly constructed unbalanced antenna system directly with a reasonable degree of matching. Balanced antennas may be matched by use of the TMC Model TRC 3500 Transmitting Antenna Coupler or the TMC Model TAC, Antenna Tuning Unit.

A desk mounted remote-control amplifier is available as an accessory which contains a speech clipping amplifier and provides for low level microphone input, keying input sidetone for CW monitoring, 3 audio tones for MCW and remote control of plate power supply. This equipment has been designated Model RTC Remote Control Amplifier.

A. MULTICHANNEL OPERATION

The GPT-750 is adaptable for multichannel operation by the stacking of Models RTF Master Oscillator-Amplifier and in this manner additional pre-set frequencies are immediately available.

B. FREQUENCY SHIFT OPERATION

Frequency Shift transmission is provided by the TMC Model XFK, Frequency Shift Exciter. The XFK fits into a Panel-Chassis Assembly, Part A-959, which is mounted in the

TABLE 1-1. STANDARD COMBINATIONS

COMBINATIONS	CONSISTS OF	TYPE EMISSION
GPT-750(A)	Model RTF Model RTP A-958 CAB/FRAME A-1303 BLANK PANEL	A1, A2*
GPT-750(B)	Model RTF Model RTM Model RTP A-958 CAB/FRAME	A1, A2*, A3
GPT-750(C)	Model RTF Model XFK AND A-959, PANEL CHASSIS ASSEMBLY Model RTP A-958 CAB/FRAME	A1, A2, F1, F3, F4
GPT-750(D)	Model RTF Model SBE-1 AND A-1279, PANEL CHASSIS ASSEMBLY Model RTP A-958 CAB/FRAME	A1, A3 (A3a, A3b)

* Using external source of keyed tone such as supplied by The Remote Control Amplifier, Model RTC.

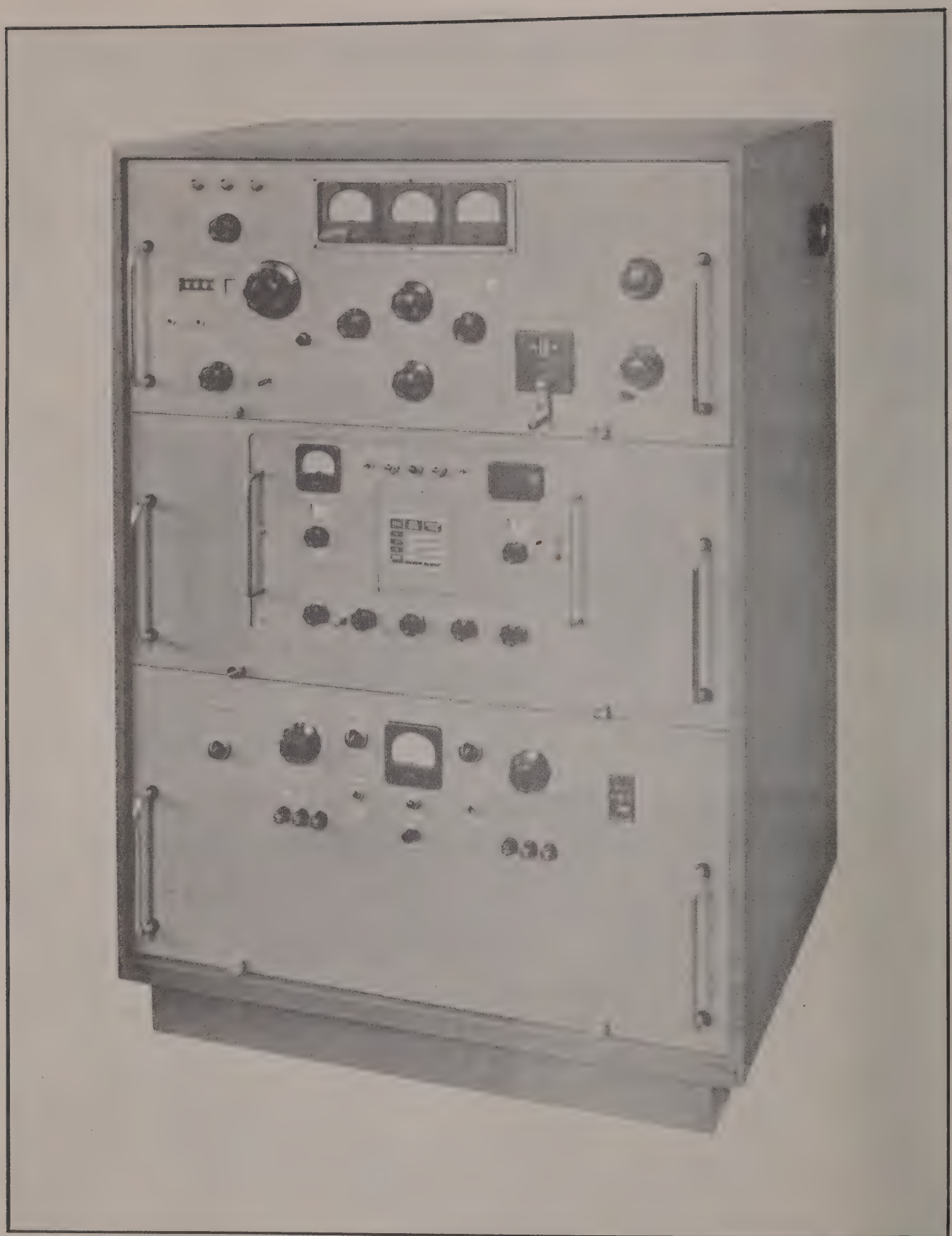


Figure 1-2. Front View, Model GPT-750(C)

transmitter frame to replace the Modulator, Model RTM.

Where simultaneous use of the XFK and RTM is desired, the XFK may be employed from an external position (physically) and fed into the GPT-750 through jacks on rear of cabinet frame.

C. SINGLE SIDEBAND OPERATION

The GPT-750 is adaptable for SSB operation in conjunction with the TMC Model SBE, Single Sideband Exciter which provides single sideband, with suppressed carrier, two independent sidebands with suppressed carrier, double sideband with full carrier, or CW operation. The SBE fits into Panel-Chassis Assembly, A-1279.

D. ORDERING INFORMATION

The GPT-750(B) consists of a number of individual component equipment as follows:

Model RTF Master Oscillator- RF Amplifier

Model RTM Radio Transmitter Modulator

Model RTP Radio Transmitter Power Supply

Standard combinations and the types of emission available with each are shown in Table 1-1.

2. DESCRIPTION OF UNIT

The TMC Model GPT-750(B) and GPT-750(C) are shown in Figures 1-1 and 1-2 respectively. The cabinet is constructed of reinforced steel and finished in blue wrinkle. It is divided into three compartments to receive each of the drawer assemblies on rugged slide runners.

The TMC Models RTF, RTM and RTP front panels are of 3/16" thick aluminum and finished in light grey enamel with functions deeply engraved for attractiveness and long wear.

The selection of parts and material has been made in accordance with standard JAN/MIL specifications with parts peculiar kept at the very minimum. It will be noted that where JAN/MIL specifications parts are used, the applicable part numbers have been incorporated into the TMC parts system, permitting service use of standard replacement parts from their own stock. Where parts peculiar are necessary only sound, high quality engineering standards are used in their selection.

Many of the parts used are interchangeable with parts used in other TMC equipment, and use the same part numbers, making logistic support of the equipment less complex for those activities familiar with our other equipment.

3. TECHNICAL SPECIFICATIONS

FREQUENCY RANGE:
2 to 32 Mc, band switched

POWER RATING:
1000 Watts output, CW or FS.
750 Watts output, radio telephone.
750 Watts output, PEP, Single Sideband for continuous commercial service.

FREQUENCY CONTROL:
Built in high stability master oscillator as used in TMC Models VOX and PMO, plus three crystal positions (CR18/U in HC-6/U Holders) selectable by front panel switch.

KEYING SPEED:
Up to 240 W.P.M. on CW
Up to 1000 W.P.M. on FS with TMC Model XFK.

MASTER OSCILLATOR CHARACTERISTICS:

FREQUENCY RANGE:
2 to 4 Mc continuously variable.

OSCILLATOR CALIBRATION:
Direct reading in cps

READABILITY:
20 cps per megacycle to a previously calibrated frequency.

FREQUENCY CALIBRATION:
Oven controlled 100 Kc Oscillator provides crystal check points. 100 Kc Oscillator may be calibrated against a primary standard.

ZERO BEAT INDICATION:
50 Kc check points on Neon Light Null Indicator. Additional aural check points are available.

STABILITY:
Better than 20 cps per Mc for a 30 degree change in ambient.

LINE VOLTAGE EFFECT:
Not more than 10 cps for a ±10% variation.

CRYSTAL OSCILLATOR CHARACTERISTICS:

FREQUENCY RANGE:
2 to 4 Mc.

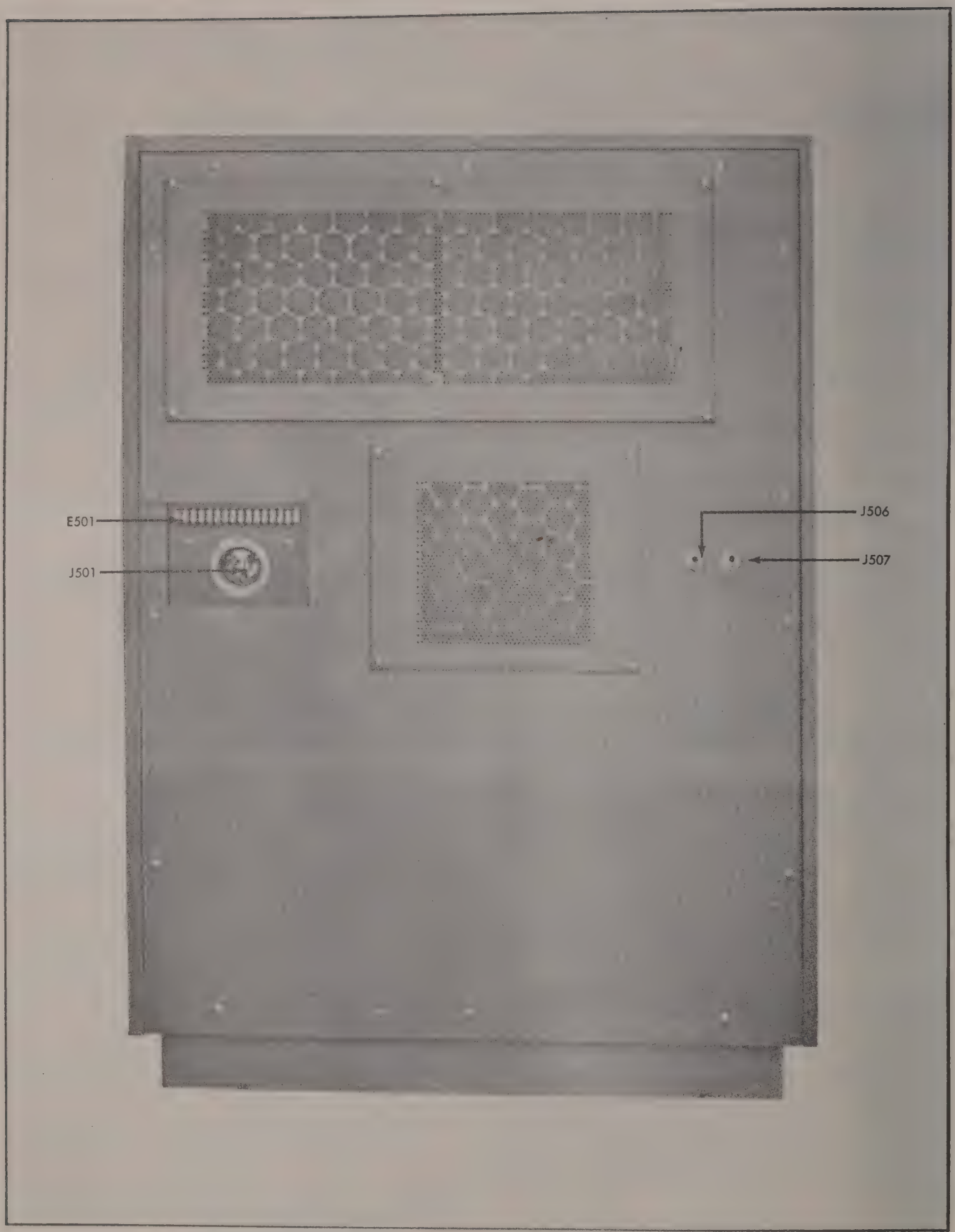


Figure 1-3. Rear View, Cabinet

CRYSTAL USED:
CR18/U in HC6/U Holder

NUMBER OF POSITIONS:
3, selectable from front panel.

MODULATION CHARACTERISTICS:
Capable of 100% sine wave plate modulation with less than 10% distortion.

NOISE LEVEL:
Better than 40 db down.

FREQUENCY RESPONSE:
Uniform within ±1.5 db from 100 to 5000 cps.

OUTPUT IMPEDANCE:
30 to 1000 ohms @ angle 0° (equivalent SWR=1)
50 to 700 ohms @ angle ±45° (equivalent SWR=4/1) all unbalanced to ground.

AUDIO INPUT:
1. 600 ohm balanced or Carbon Microphone.
2. Low level Microphone when used with Model RTC.

TUNING:
All tuning and band switching from front panel. (no plug-in frequency components).

COOLING:
Forced filtered air (Two seperate blowers).

OVERLOAD & BIAS PROTECTION:
Automatic protection.

TEMPERATURE HUMIDITY:
Designed to operate in any ambient temperature between the limit of 0 degrees and ±50°C for any value of relative humidity up to 75%.

TUBE COMPLEMENT:

RTF Chassis	RTP Supply	RTM Modulator
2 ea. 4-250A	2 ea. 872A	2 ea. 810
1 ea. 6146	2 ea. 5R4GY	2 ea. 6L6
1 ea. 6BF5	1 ea. 6X4	1 ea. 12AT7
2 ea. 6AH6	2 ea. OB2	1 ea. OA3
2 ea. 12AT7		1 ea. 5R4GY
2 ea. OA2		
3 ea. 12AU7		
2 ea. 6C4		
1 ea. 6BE6		
1 ea. 4HTF4		

AVERAGE PLATE EFFICIENCY:
Better then 70%.

PRIMARY POWER:
115/230 volts, 50/60 cps, 1Ø, approximately 2600 watts @ P.F. =.87 for full CCS output.

ACCESSABILITY:
Tube changes and repairs accomplished from the front of the equipment.

RUGGEDNESS:
Transmitter is designed for mobile application with the addition of shock mounts.

CABINET:
Reinforced steel.

SIZE:
Height 47'', Width 34'', Depth 27''.

WEIGHT:
695 lbs.

COMPONENTS & CONSTRUCTION:
Equipment manufactured in accordance with JAN specifications wherever practicable.

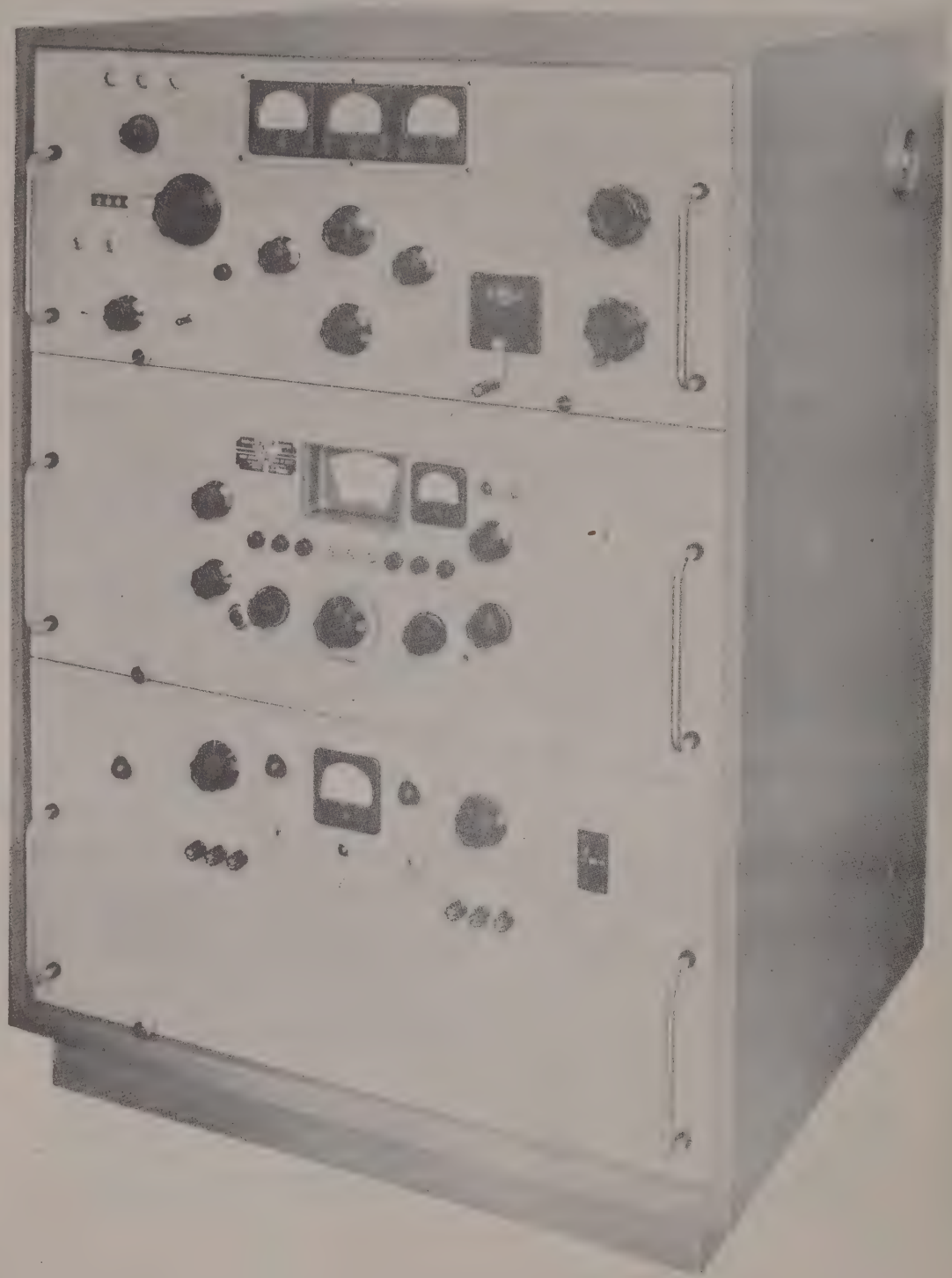


Figure 1-4. Front View, Model GPT-750(D)

SECTION II
THEORY OF OPERATION

1. GENERAL DESCRIPTION OF CIRCUITS

In the following discussion, reference to Figures 2-1, 5-1 and 5-2 Block, Functional Schematic and Schematic Diagram of the Transmitter, will serve to show the arrangement and function of the various circuit sections. Constant reference to both the block and schematic diagrams, will facilitate a more thorough understanding of the unit and will serve to illustrate the basic composition of the Model GPT-750.

A. THE OVEN AND OVEN ENCLOSED ELEMENTS:

(1). The Master Oscillator (V301)

The Master Oscillator has been designed and is constructed mechanically and electrically with careful regard to those parameters which are necessary to a highly stable device. A prime consideration in its design was temperature coefficient compensation, however, the additional refinement of enclosing virtually the total oscillator unit in a double oven serves to greatly widen the service for which the device may be used. In addition, to compensate the extreme variations in line voltage frequently encountered in portable service, both plate and filament voltage are regulated before entering the oven.

(2). The Cathode Follower (V302A)

A cathode follower in the output circuit isolates the master oscillator from any external devices which may possibly influence its frequency.

(3). The 100 Kc Oscillator (V302B)

The 100 Kc Oscillator is a crystal controlled device of extreme long term stability. It is utilized to calibrate the master oscillator. The need for such stability is apparent and justifies the many steps which were taken to ensure its remaining on frequency. For this reason, it is also enclosed within the oven and is supplied with regulated filament and plate voltages.

(4). The Oven

The oven itself is composed of an inner and outer shell, each of which is a temperature controlled entity in itself. The outer shell is maintained, within small limits, at a given temperature by the combination of S303, which is a bimetallic temperature sensitive switch, and the heating blankets R308A and R308B. The inner shell is a vernier, so to speak, on the outer shell. R307A and R307B, the inner shell heating blankets, are controlled by an accurate bimetallic thermostat (S301). The entire assembly contains a large mass of metal and insulating materials, distributed through its cross section so that its heat inertia is high and, consequently, its temperature is extremely stable.

B. INTERCONNECT SUB-CHASSIS

(1). The Cathode Follower (V402)

This stage serves to further isolate the variable load effects upon the master oscillator frequency.

(2). The Crystal Oscillator-Amplifier (V403)

The R.F. Amplifier is a broad banded device whose purpose is to voltage amplify the cathode follower output to the point where sufficient drive is obtained for the amplifier-doubler. Selection of one of three crystal positions of the oscillator switch converts this stage into an electron coupled crystal oscillator. The same switch also disables the master oscillator.

(3). Cathode Follower Output (V404)

The Triodes connected in parallel function as a conventional cathode follower, but with very low output impedance. This enables the use of longer transmission lines when an F.S. or SSB Exciter is to be located outside the main cabinet frame and be driven by the GPT-750 oscillator.

(4). The Mixer (V405)

It is the purpose of this stage to combine an appropriate harmonic of the 100 Kc oscillator with the master oscillator output to produce beat products for calibration of the M.O. The output of the mixer is then passed through a low pass filter so that only when the two signals are within audio frequency range of each other is a voltage output obtained from this stage.

(5). The Audio Amplifiers (V406A, V406B)

These audio amplifiers are resistance

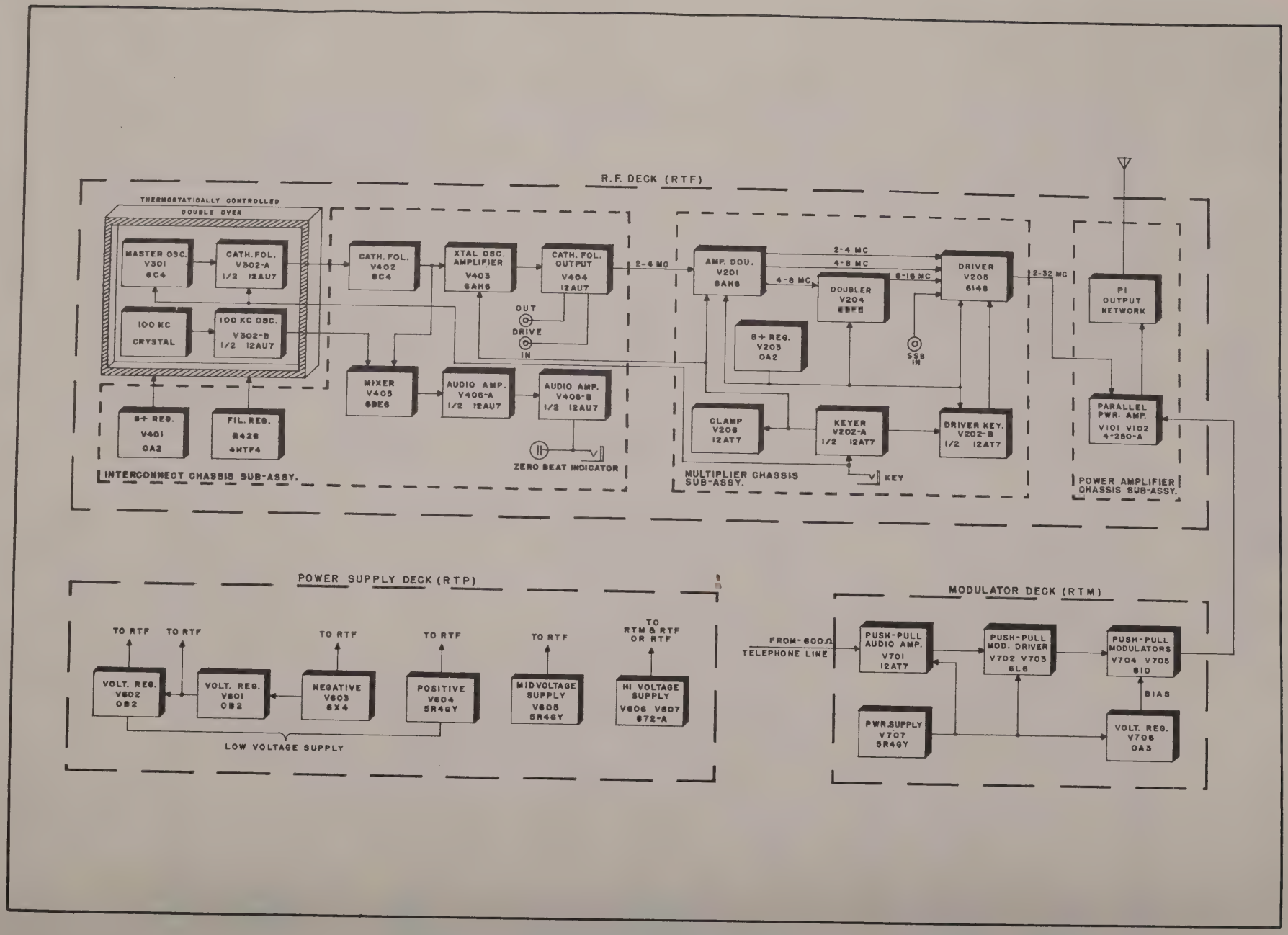


Figure 2-1. Block Diagram for Model GPT-750.

coupled stages having good low frequency response. This characteristic, when combined with the glow discharge output indicator, results in a system capable of displaying frequency differences down to a cycle per second.

C. MULTIPLIER SUB-CHASSIS

(1). Amplifier-Doubler (V201)

This stage operates as a straight amplifier or doubler. The plate of this stage is tuned and provides output sufficient to drive the doubler-quadrupler or the P.A. driver, depending on the driver band.

(2). Doubler (V204)

This stage functions as a frequency doubler. In both cases the output is fed to the P.A. driver for further amplification. When the transmitter is operating within the 2-8 Mc range this stage is not in use.

(3). Driver

Drive for the PA is obtained from this stage which simply amplifies below 16Mc and doubles above this frequency.

(4). B+ Regulator (V203)

This regulated voltage is fed through the DRIVE control to the screen grids of V204 and V205. The same regulated voltage is fed to the driver keyer, as explained below.

(5). Keyer Circuit (V202A, V202B)

The keyer circuit performs double duty; first by properly selected time constants, keying the first multiplier and driver in sequence so as to obtain a slightly integrated output pulse. This serves to keep keying "clicks" to a minimum. Secondly, if the low voltage supply should be removed, for any reason, the keyer circuit will automatically bias the amplifier-doubler and protect all stages.

D. POWER AMPLIFIER SUB-CHASSIS

(1). Power Amplifier and Pi Network (V101, V102)

The power amplifier stage consists of two tubes in parallel effectively lowering the plate resistance and permitting a large variety of loads per tap of the tank coil. The pi network serves to match the power amplifiers to the load and produces very effective rejection of harmonies.

E. MODULATOR CHASSIS (RTM)

(1). Audio Amplifier (V701)

This stage operates as a class A push-pull amplifier and is transformer coupled to V702 and V703. Almost all of the voltage gain in the modulator is obtained in this stage.

(2). Modulator Drivers (V702, V703)

The drivers are operated class A push-pull. The output is transformer coupled to the modulators V704 and V705.

(3). Modulator (V705)

This stage operates push-pull class AB_1 and developes sufficient power to plate modulate the final R.F. amplifiers. The application of voltage to the modulator plates is controlled by the relay K701 which in turn is controlled from the RTP. To protect the modulator transformer in the absence of load, a spark gap (.203") is installed across the secondary winding.

(4). Power Supply (V706, V707)

V707 supplies fixed bias to the modulators. A voltage regulator (V706) maintains the bias at a fixed value. If, for any reason, the modulator power supply should fail and bias be removed from the modulators, the plate voltage will also be automatically cut off by the relay K701 which is being energized by the bias supply.

F. POWER SUPPLY CHASSIS (RTP)

(1). The High Voltage Supply (V606, V607)

This supply is of conservative design containing mercury vapor high voltage rectifiers. Rectification is full wave and is followed by a choke input filter network. The percentage of regulation is high due to the low internal impedance of the rectifiers. This power is supplied to the modulator and R.F. amplifiers.

(2). Mid-Voltage Supply (V605)

This supply is similar to that described above except that the voltage supplied is lower. This voltage is supplied to the R.F. Amplifiers and keying circuit.

(3). Low Voltage Supply (V601, V602, V603, V604)

The low voltage power supply contains two rectifier stages: Full wave rectified (V604) positive voltage with choke input filter and half

wave rectified (V603) negative voltage with condenser input filter. V601 and V603 regulate the bias voltage to the R.F. amplifiers.

(4). Control (Overload) Circuits

All power amplifiers and high voltage rectifiers are thoroughly protected against overload.

(a). The time delay relay, K603, prevents the application of high voltage to the mercury vapor rectifiers before their filaments have been allowed to warm up sufficiently.

(b). The P.A. plate overload relay removes all B+ voltages when the current drawn from the high voltage supply becomes excessive, thus protecting the final amplifiers and (when included) modulators.

(c). The screen grids of the final R. F. amplifiers (V101, V102) are protected against overdissipation. When excessive current is drawn from the mid voltage supply, the P.A. screen grid overload relay will activate the P.A. plate overload which in turn will remove all B+ voltages as explained in the preceding sub-paragraph.

SECTION III
INSTALLATION AND OPERATION

1. INSTALLATION

A. UNPACKING:

The Model GPT-750 will, in most cases, be shipped in four containers. Upon receipt they should be carefully opened and the contents thoroughly inspected for any physical damage due to rough handling during shipment. Upon receipt of damaged equipment, notify the carriers the extent of damage.

B. LOCATION:

After unpacking and inspecting the cabinet frame, place it in its operation position. It is advisable to do this first since the combined weight of the cabinet and the drawers will make this more difficult later on. For those activities desiring to secure the unit to the floor, the mounting dimensions are shown in Figure 3-1.

C. INSTALLATION OF DRAWERS:

CAUTION

THE POWER SUPPLY DRAWER SHOULD BE INSTALLED FIRST TO PREVENT TIPPING.

Each cabinet compartment is equipped with slides, see Figure 3-2. The center section of each slide should be pulled out until it locks in position as shown. The drawer should be carefully lifted from each side and the tracks guided

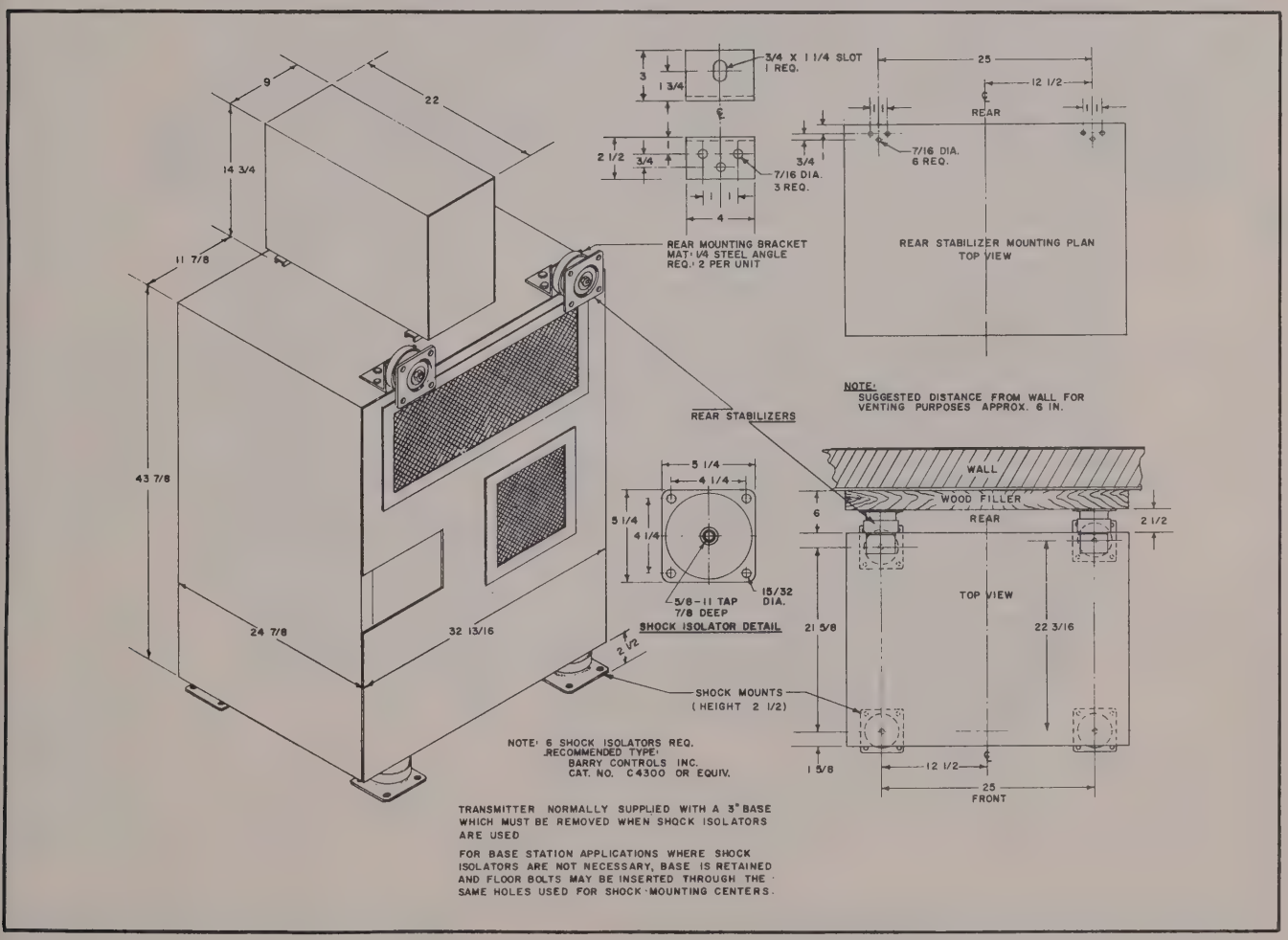


Figure 3-1. Mounting Dimensions

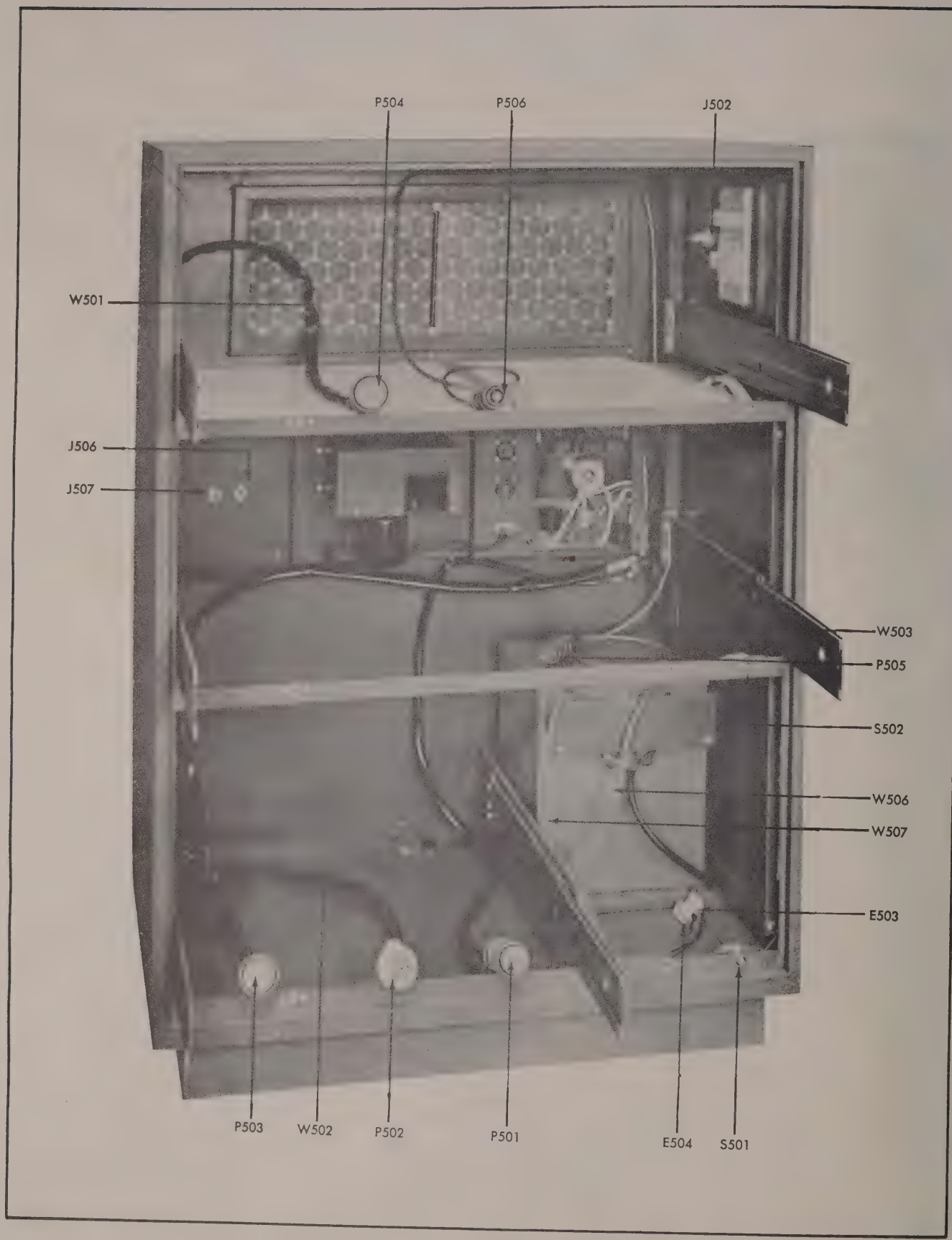


Figure 3-2. Front View, Cabinet / Frame

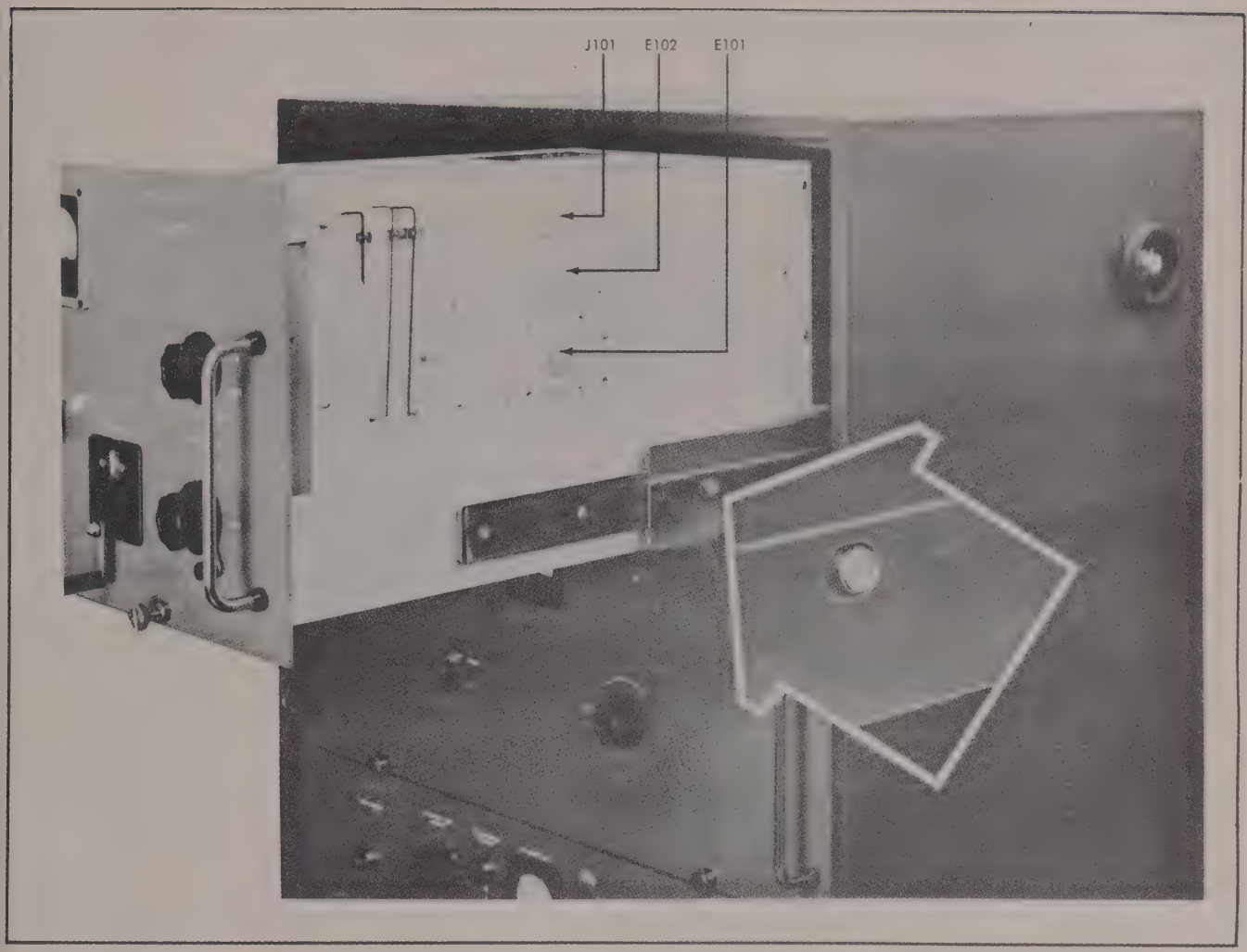


Figure 3-3. Side View, Showing Slide Mechanism

into the extended slides, care being taken to keep the drawer on a level plane to prevent binding. The drawer should be slid forward while depressing the "lock buttons". The drawer will lock into the "lock holes" as shown in Figure 3-3. Again depress these buttons and simultaneously push drawer lightly until buttons are held down by the slide proper. Drawer will now close completely.

D. POWER SUPPLY:

The transmitter leaves the factory wired for 115 volts, 50/60 cycle source, unless specifically ordered for 230 volts, 50/60 cycles, Connection for 230 volt operation may be done in the field by making wiring changes on T501, T601, T602, T604, T705, CB601, E301, and E302 (T1 on XFK and T802 on RTC if used) as indicated on the schematic diagrams.

E. ELECTRICAL CONNECTIONS:

The following should be performed step by step. Reference to Figures 3-2 through 3-8 should be made to determine the location of each Plug and Jack.

(1). Pull out the RTP drawer and connect P502 and P503 of the cabinet to J601 and J602, respectively, on the RTP.

(2). Insert the two rectifier tubes, type 872-A into their sockets and connect the two high voltage leads of the main power transformer to the plate caps of these tubes. The longer wire to be connected to the left hand tube.

(3). Connect the high voltage lead P601 of the RTP to J703 located on the rear apron of the modulator. Where the modulator is not included, connect P601 to J503 on the cabinet.

(4). Remove the long cover held on by twist lock fasteners and insert the time delay tube and its shield.

PA GRID BIAS ADJUSTMENT

Although the grid bias has been correctly preset at the factory, to insure optimum service, it is advisable to check the grid bias. The desired "no signal" PA plate current should be 100 ma.

For adjustment of the PA bias proceed as follows:

(1) Set the MODE switch to the CW-FS position.
(2) Turn the DRIVE control fully counter-clockwise. There must be no drive available to the PA.
(3) Set the TRANSMITTER PLATES and PA PLATES switch to "ON".
(4) Adjust the PA grid bias adjust (R608) until the PA grid current is 100 ma.

NOTE: When a PA tube has been changed it may be necessary to re-adjust the PA grid bias.

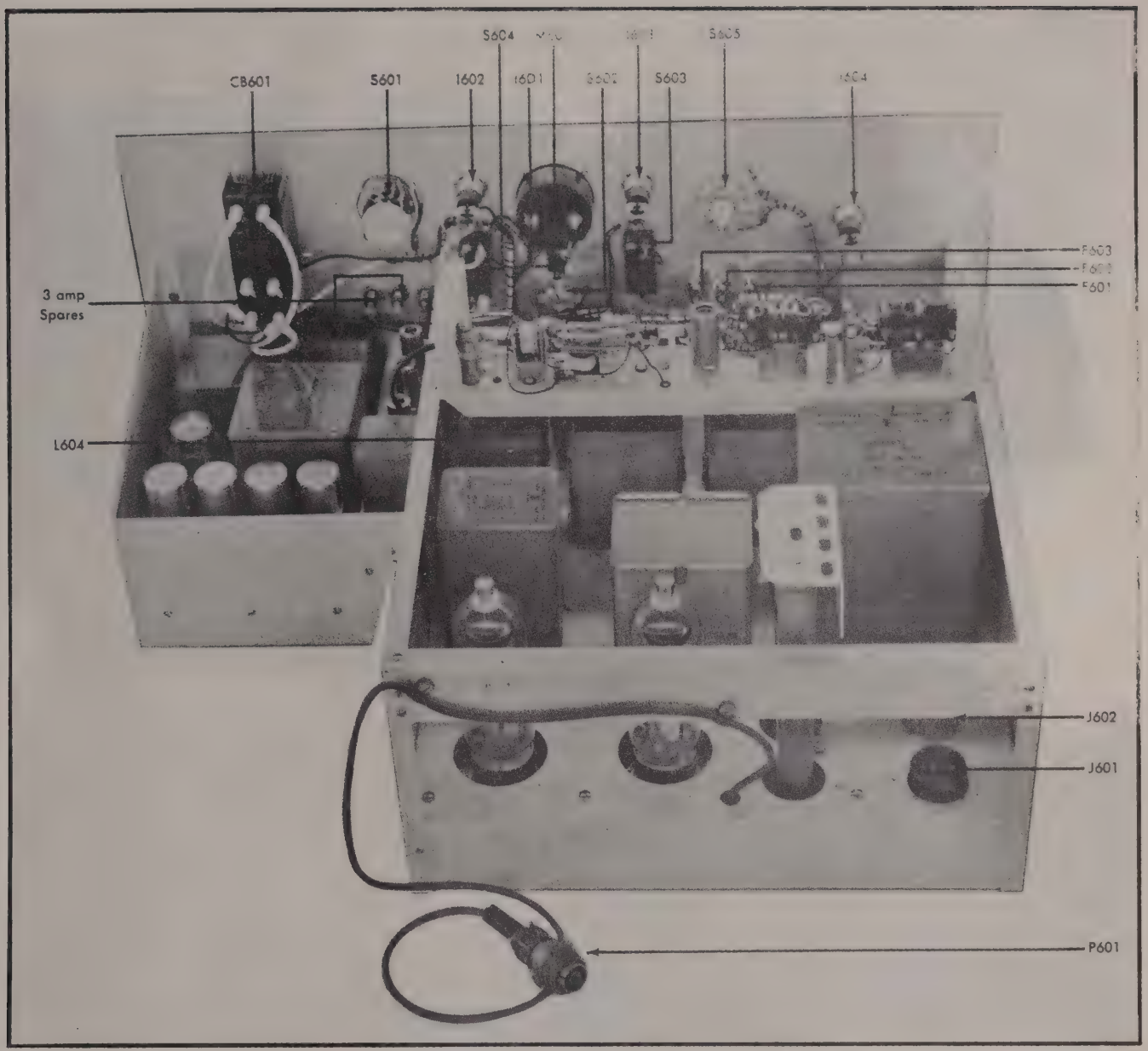


Figure 3-4. Rear View, Model RTP

(5). Insert all tubes and shields of the RTP.

(6). Release the lock buttons on the slides and push the drawer closed.

NOTE

FOR THOSE INSTALLATIONS NOT HAVING THE MODEL RTM INCLUDED IN THE UNIT OR WHERE THE MODELS XFK, FREQUENCY SHIFT EXCITER, AND/OR SBE, SINGLE SIDEBAND EXCITER IS INCLUDED, STEPS 7 THROUGH 10 WILL BE DISREGARDED AND REFERENCE SHOULD BE MADE TO THE CABLING DIAGRAM, FIGURE 3-8.

(7). Pull out the RTM drawer and insert all tubes and shields.

(8). Connect the grid and plate caps to the modulator tubes.

(9). Connect P501 and P505 to J701 and J702 respectively.

(10). Repeat step 6.

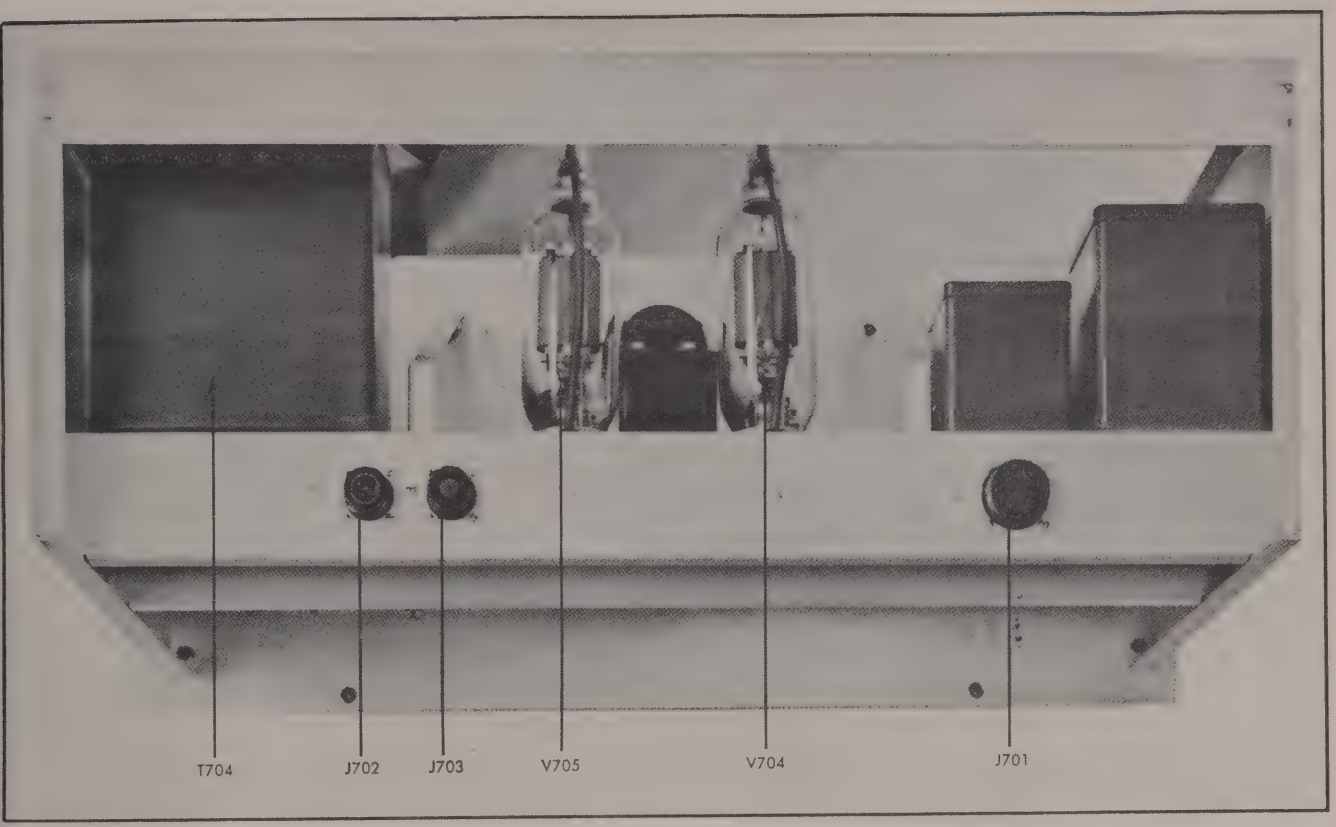


Figure 3-5. Rear View, Model RTM

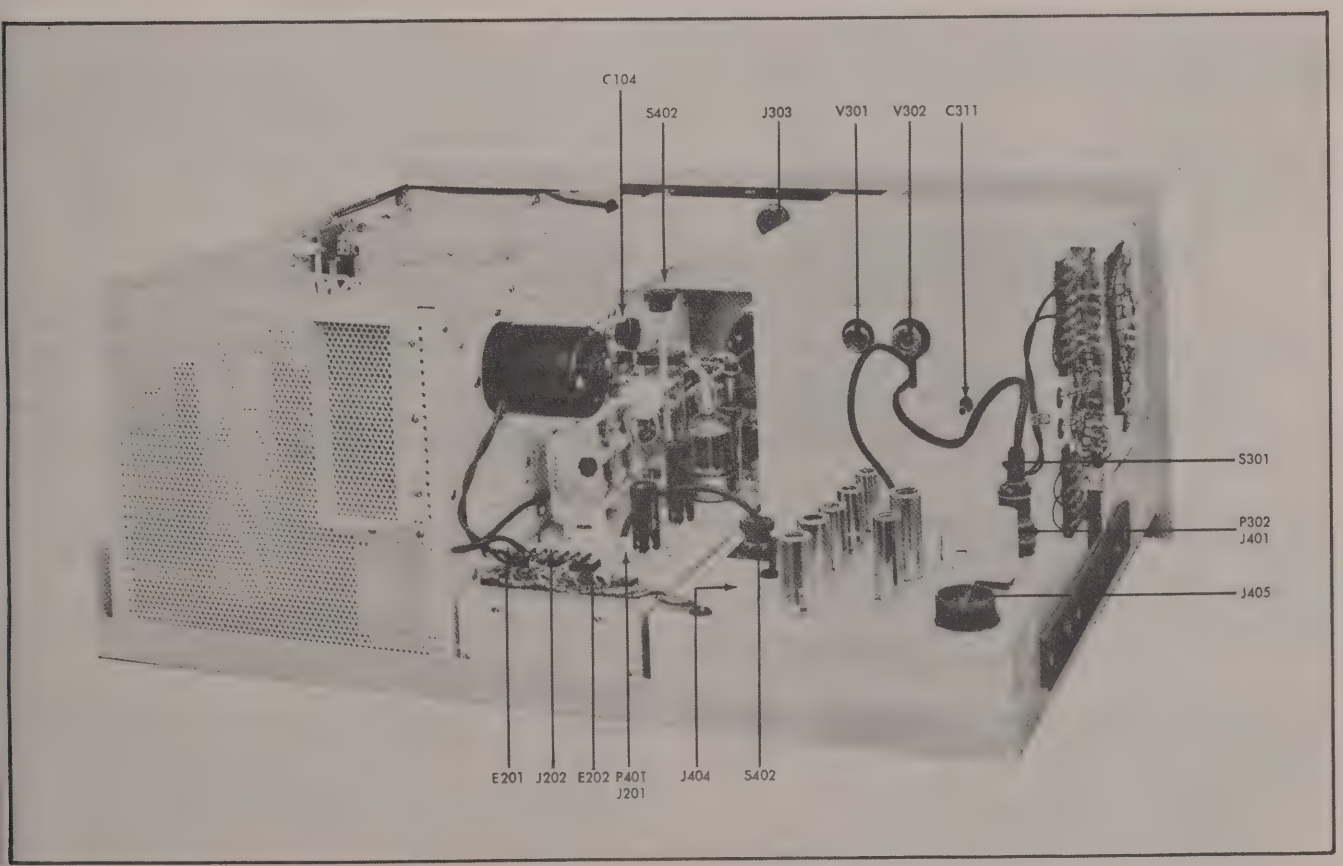


Figure 3-6. Rear View, Model RTF

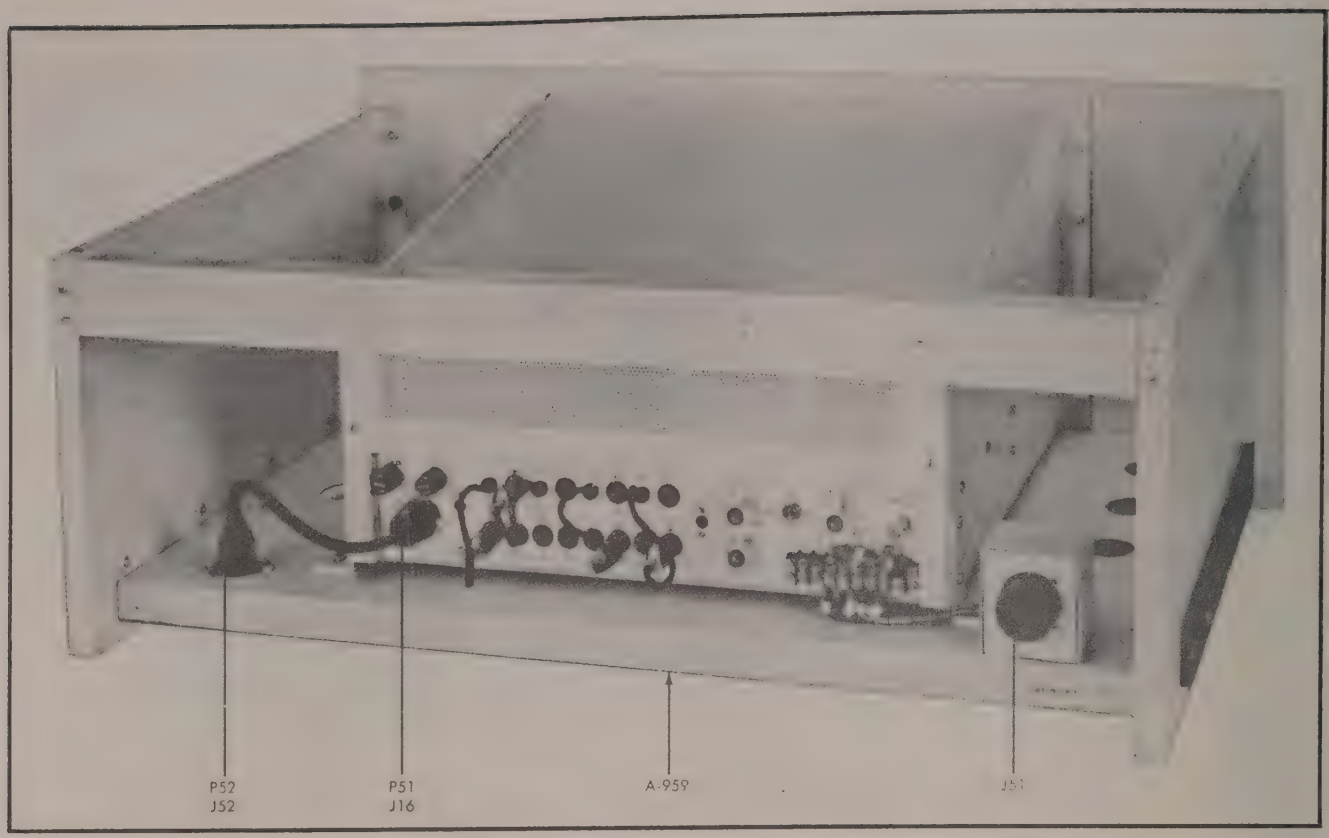


Figure 3-7. Rear View, Model XFK in Panel-Chassis Assembly

(11). Pull out the RTF drawer and insert all tubes and shields.

(12). Connect and tighten the plate caps of V101, 102, 205.

(13). Connect P506 to J303.

NOTE

FOR THOSE INSTALLATIONS HAVING THE XFK INCLUDED, CONNECT P508 TO J404 AND P509 TO J403.

Where simultaneous use of an XFK and RTM is desired, connect P507 to J506 and P510 to J507. The XFK should now be connected into the Cabinet/Frame through J506 and J507. The OUTPUT (J1) should be connected to J506 and the EXT. INPUT (J15) to J507.

For external operation of the Model SBE-1, connect P508 to J202, P509 to J403, P507 to J506 and P510 to J507.

(15). Repeat step 6.

(16). Tighten all front panel locks (thumb screws).

(17). Connect the AC line to J501 on the back of the cabinet through the AC plug, the supplied loose item.

2. OPERATION

A. Description of Controls.

All controls are identified on the front panels and are arranged for ease of operation. Table 3-1 gives the general location and function of these controls.

B. CW OPERATION (For combinations A, B, C or D, Figure 3-8)

(1). Turn on MAIN POWER. MAIN POWER indicator must light.

(2). Turn FILAMENT LINE ADJUST until FILAMENT LINE meter reads 115 volts.

(3). Rotate the MODE switch to the TUNE position. It will be necessary to wait a full sixty seconds after the MAIN BREAKER has been closed before the time delay relay will permit turning on of the TRANSMITTER PLATES switch.

The RF section of the Transmitter may now be tuned.

TABLE 3-1. DESCRIPTION OF CONTROLS

CONTROL	LOCATION	FUNCTION
	RTP	
MAIN POWER	Extreme Right	Applies A.C: voltage to the transmitter and provides line overload protection.
FILAMENT LINE ADJUST	Left	Selects taps on the filament transformer to maintain the the desired voltage of 115 VAC.
TRANSMITTER PLATES	Left of Center	Applies plate voltage to the transmitter and final plates when the final plate switch is ON.
OVERLOAD RESET	Center	Resets overload relay system when tripped by excessive P.A. plate or screen grid currents.
MODE	Left of MAIN POWER	Selects PHONE, TUNE or CW-FS operation.
FINAL PLATES	Right of Center	When TRANSMITTER PLATES switch is on, this switch applies voltage to the final plates.
	RTM	
POWER Indicator	Left of Center	Lights when modulator power supply is on.
MODULATOR CURRENT meter	Top Center	Permits visual monitoring of modulator cathode current.
GAIN	Right of Center	Varies the voltage input to the grids of the modulator drivers.
	RTF	
INNER OVEN indicator	Top Left Side	Lights during warming periods of the inner oven.
ZERO BEAT indicator	Top Left Side	During calibration, as zero beat is approached this indicator will begin to flash at a rate which indicates the number of cycles away from zero beat the instrument is set.
OUTER OVEN	Top Left Side	Lights during warming periods of of the outer oven.
CALIBRATE	Top Left Side	When the oscillator dial if set to the nearest 50 Kc check point which is closest to the desired

CONTROL	LOCATION	FUNCTION
		frequency the CALIBRATE control is rotated until a zero beat is obtained.
MASTER OSCILLATOR FREQUENCY	Left Side	Tunes the MO within the oven to the frequency indicated on the counter.
KEY	Center Left Side	Permits ON/OFF keying of the transmitter for CW operation.
PHONES	Left Side	Audible monitoring of the zero beat signal.
OSCILLATOR	Bottom Left Side	Rotation of this switch permits calibration of the MO, use of the MO or use of one of the three crystals to drive the transmitter.
METER	Left Center Top	Permits visual monitoring of the driver plate, P.A. grid or P.A. screen grid current through a switch.
PA PLATE	Top Center	Permits visual monitoring of the P.A. plate current.
RF OUTPUT	Right of Center	Permits visual monitoring of the transmitter output current.
DR PL/PA GRID/ PA SG	Left of Center	Switches the METER into these various circuits to allow visual monitoring of the current drain.
DRIVER TUNING	Center	Varies the multiplier plates and P.A. driver tuning capacitors.
DRIVER INCR.	Right of Center	Varies the amount of drive to the P.A. grids.
DRIVER BAND	Bottom Center	Switches in and out various coils to change the frequency of the driver plate tank.
PA TUNING	Bottom Right	Varies the main tuning vacuum capacitor which is an integral part of the P.A. Pi tank.
PA BAND	Top right corner	Sets the P.A. tank to the proper band by tapping the output coil.
ANTENNA LOADING INCR.	Bottom right corner	Adjust the amount of coupling to the load (Antenna).
2 INCR. 1	Bottom right corner	Switches in an additional loading capacitor for loads of lower impedance.
TEST KEY	Bottom Left	Provides emergency and test keying.

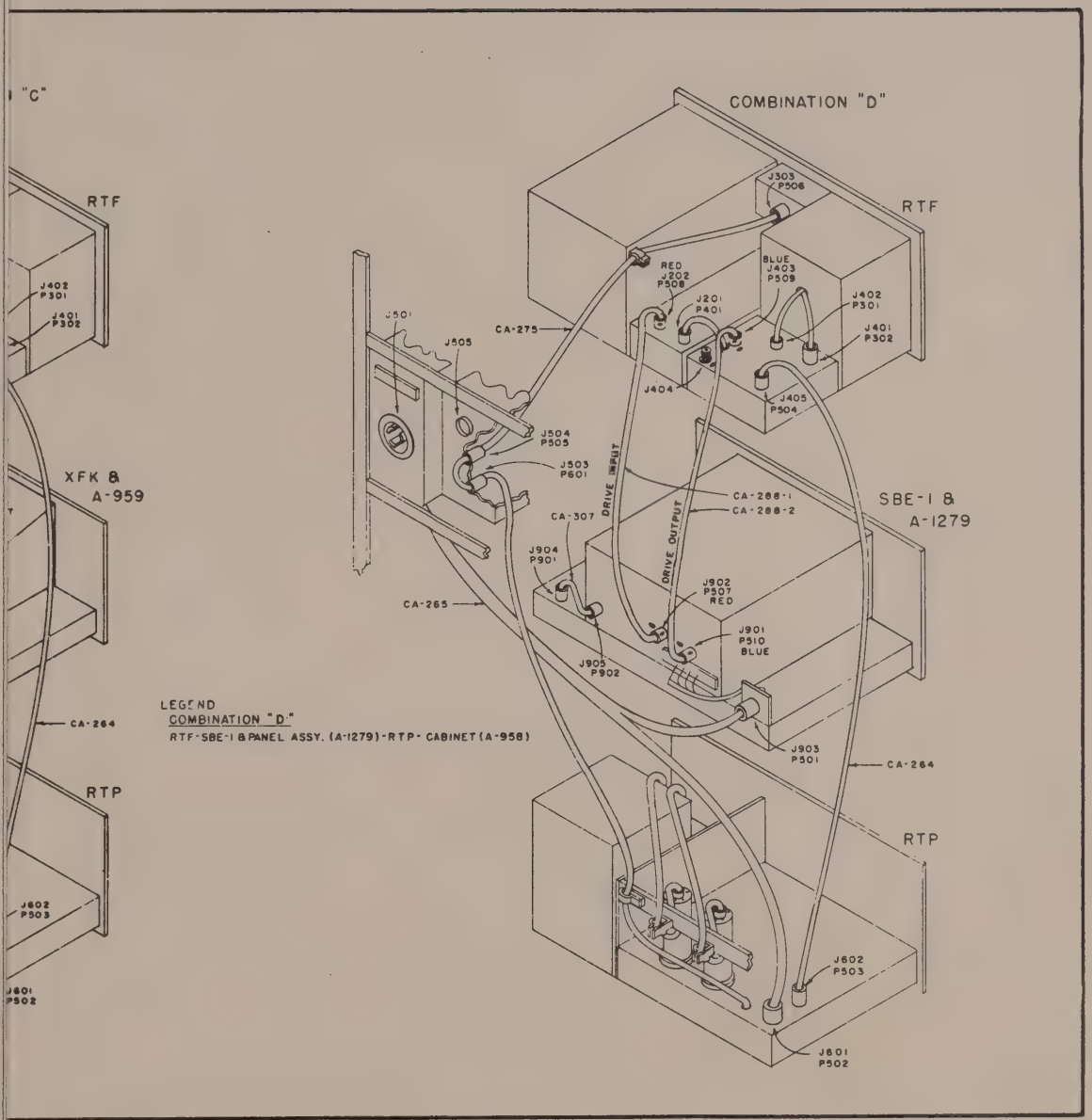


Figure 3-8. Cabling Diagram

CONTROL	LOCATION	FUNCTION
		frequency the CALIBRATE control is rotated until a zero beat is obtained.
MASTER OSCILLATOR FREQUENCY	Left Side	Tunes the MO within the oven to the frequency indicated on the counter.
KEY	Center Left Side	Permits ON/OFF keying of the transmitter for CW operation.
PHONES	Left Side	Audible monitoring of the zero beat signal.
OSCILLATOR	Bottom Left Side	Rotation of this switch permits calibration of the MO, use of the MO or use of one of the three crystals to drive the transmitter.
METER	Left Center Top	Permits visual monitoring of the driver plate, P.A. grid or P.A. screen grid current through a switch.
PA PLATE	Top Center	Permits visual monitoring of the P.A. plate current.
RF OUTPUT	Right of Center	Permits visual monitoring of the transmitter output current.
DR PL/PA GRID/ PA SG	Left of Center	Switches the METER into these various circuits to allow visual monitoring of the current drain.
DRIVER TUNING	Center	Varies the multiplier plates and P.A. driver tuning capacitors.
DRIVER INCR.	Right of Center	Varies the amount of drive to the P.A. grids.
DRIVER BAND	Bottom Center	Switches in and out various coils to change the frequency of the driver plate tank.
PA TUNING	Bottom Right	Varies the main tuning vacuum capacitor which is an integral part of the P.A. Pi tank.
PA BAND	Top right corner	Sets the P.A. tank to the proper band by tapping the output coil.
ANTENNA LOADING INCR.	Bottom right corner	Adjust the amount of coupling to the load (Antenna).
2 INCR. 1	Bottom right corner	Switches in an additional loading capacitor for loads of lower impedance.
TEST KEY	Bottom Left	Provides emergency and test keying.

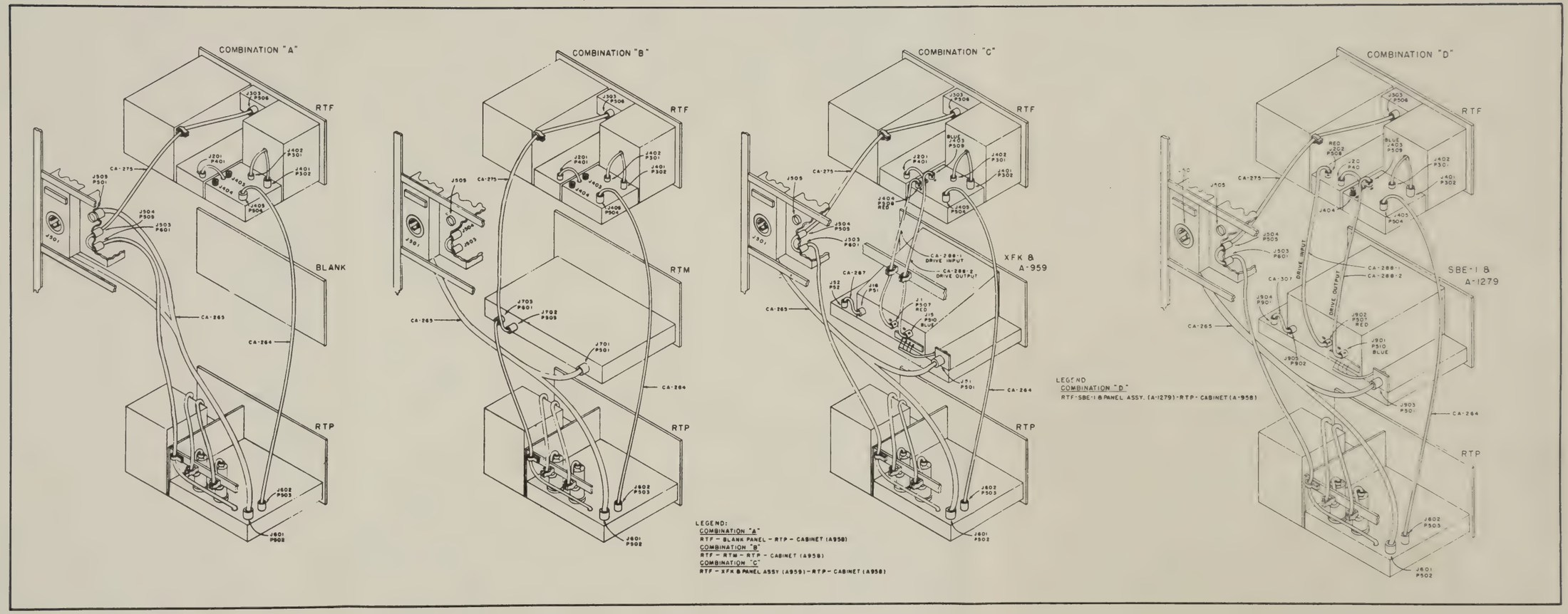


Figure 3-8. Cabling Diagram

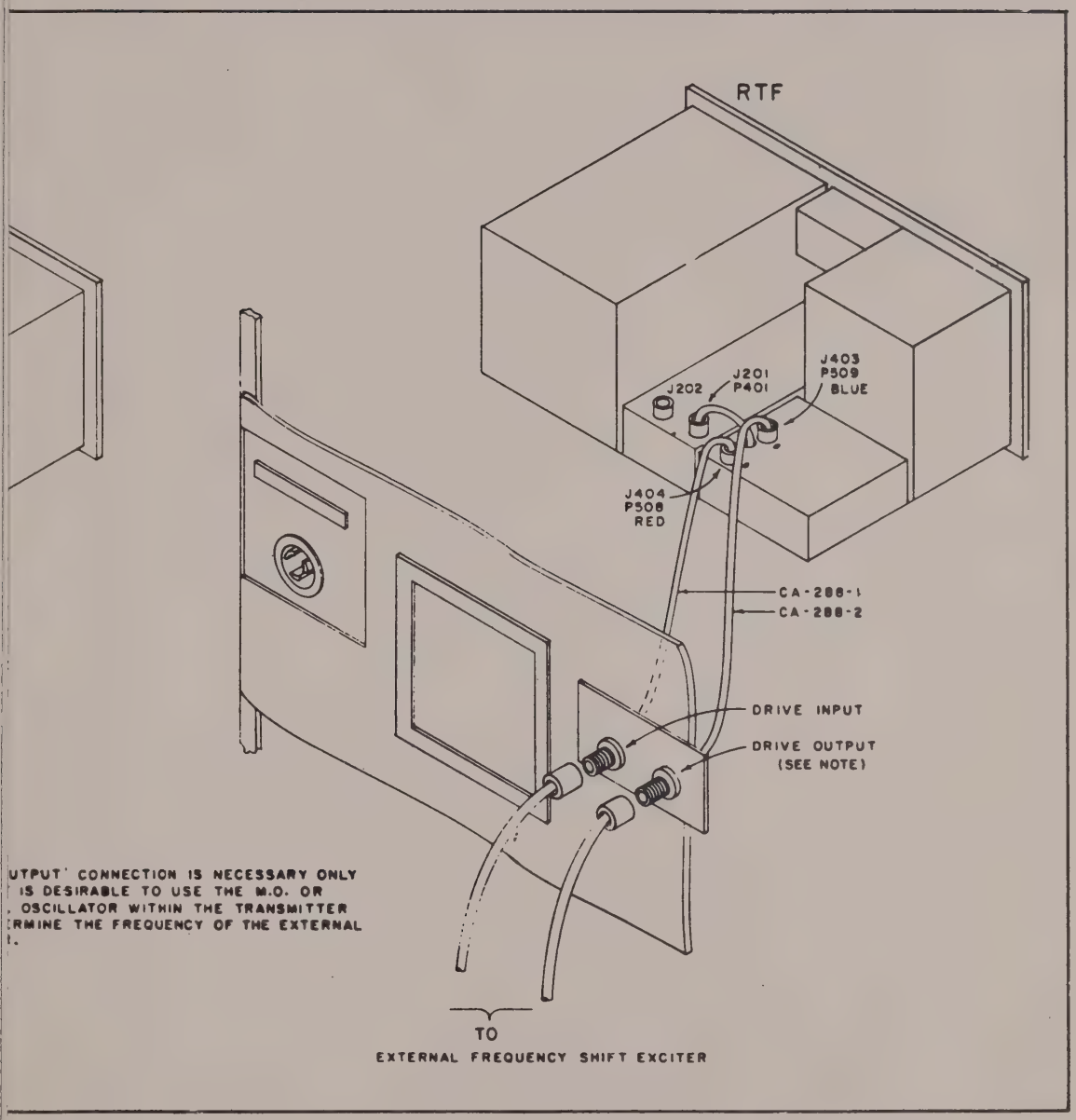


Figure 3-8A. Cabling Diagram.

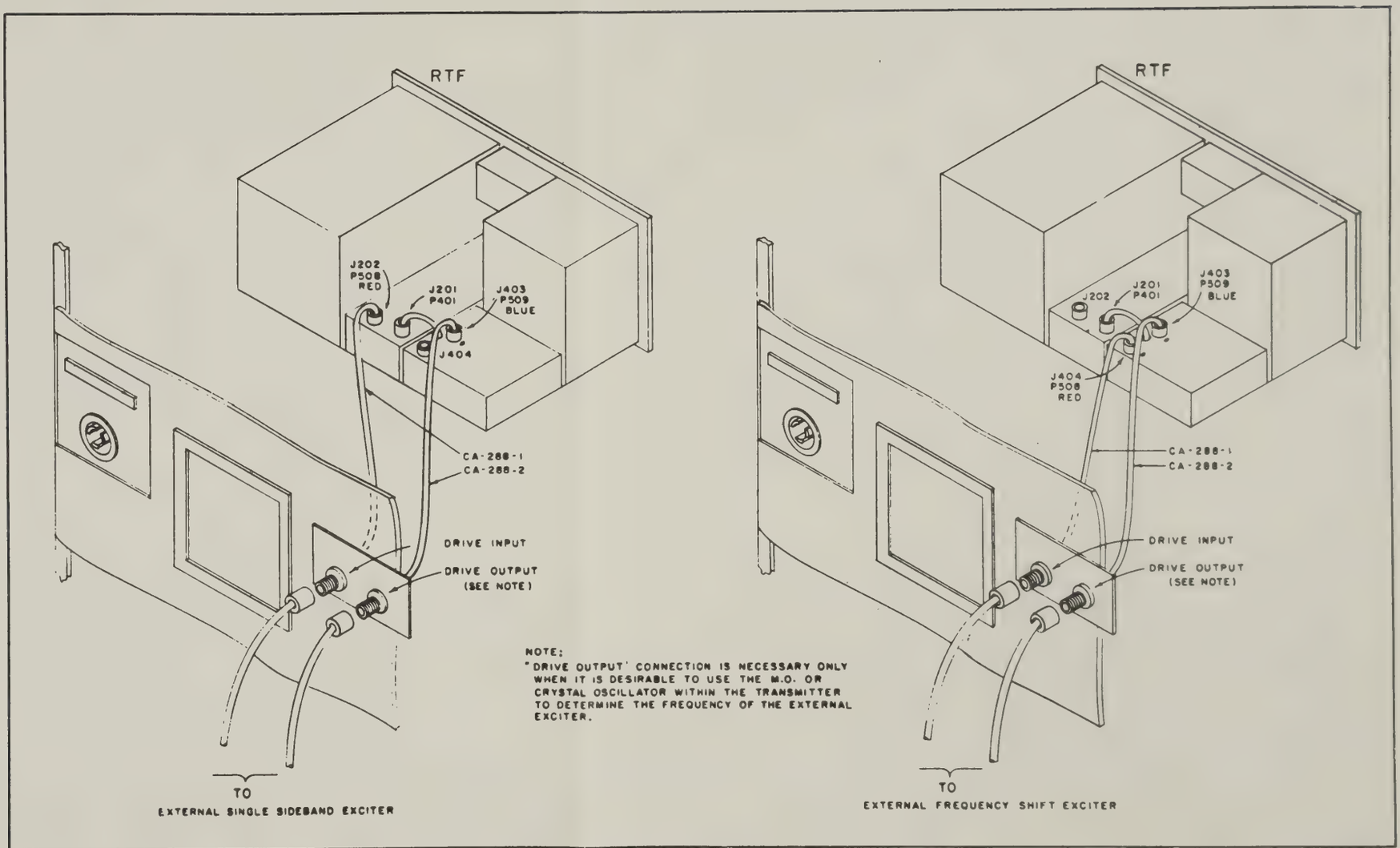


Figure 3-8A. Cabling Diagram.

(4). Pull out the top drawer and be sure that the DRIVER switch (S-402) located on the top of the interconnect chassis is in the position marked NORMAL. Close the drawer and tighten thumb screws.

Setting of Oscillator:

(5).

Carrier Frequency	Divide by
2-4 Mc	1
4-8 Mc	2
8-16 Mc	4
16-32 Mc	8

Set the oscillator frequency according to the table above.

EXAMPLE: If the carrier frequency desired is in the range of 16-32 Mcs., the oscillator frequency must be 1/8 of the carrier frequency.

a). If crystal operation is chosen, the crystal must be plugged into one of the three sockets on the top of the interconnect chassis and the OSCILLATOR switch (S-401) must be rotated to the correct crystal position.

b). If the Master Oscillator is to be used, follow the procedure outlined below.

CAUTION

THE TRANSMITTER IS DESIGNED SO THAT NO OUTPUT MAY BE OBTAINED WHEN THE OSCILLATOR SWITCH IS IN CAL POSITION. THE SWITCH THEREFORE, MUST NOT BE LEFT IN THIS POSITION IF NORMAL OPERATION IS TO BE RESUMED.

Leave the FINAL PLATE switch in the "OFF" position and throw the TRANSMITTER PLATE switch to OPERATE.

The initial step must always be the calibration of the MO. Set the OSCILLATOR switch in the CAL position. For zero beat indication, the operator has a choice of using a pair of phones or the flashing light indicator on the front panel, or both.

It is suggested that calibration of the master oscillator be made at 50 Kc intervals, i.e., every 50 Kc point, starting at 2,000,000 cps. When this procedure is followed, an accurate correction of the dial region within 25 Kc of each side of the check point has been obtained.

EXAMPLE:

Check Point	Calibration Region
2,500,000 cps.	2,475,000 to 2,525,000 cps.
2,550,000 cps.	2,525,000 to 2,575,000 cps.
2,600,000 cps.	2,575,000 to 2,625,000 cps.

Set the MASTER OSCILLATOR dial on a check point which is closest to the desired frequency and rotate the CALIBRATE knob until a beat frequency of five or less cycles per second is obtained. Rotate the MASTER OSCILLATOR dial to the desired frequency, the calibration sequence is then complete. Return the OSCILLATOR switch to the position marked MO.

CAUTION

FOR GREATEST DIAL ACCURACY, THE CHECK POINT AND DESIRED FREQUENCY MUST ALWAYS BE APPROACHED FROM THE SAME DIRECTION.

If the check point is approached by clockwise rotation, the desired frequency should also be approached from the same direction. If, by accident, the dial is rotated too fast and the point is passed, the dial should be brought back at least one Kc on the original side of the desired frequency and the point once again approached.

CAUTION

TO EXTRACT MAXIMUM LONG TERM STABILITY FROM THE MASTER OSCILLATOR, THE UNIT MUST BE GIVEN A MINIMUM WARM-UP OF AT LEAST TWENTY-FOUR HOURS AND THEN NEVER TURNED OFF UNLESS REPAIRS BECOME NECESSARY

(6). Tuning the multipliers:

a). Rotate the drive control fully clockwise.

b). Rotate the DRIVER BAND to the desired final carrier frequency range.

c). Set the METER switch to PA GR.

d). Rotate the DRIVER TUNING so that

TABLE 3-2. P.A. TUNING CHART

Output f (MCS) Frequency	P. A. Band (MCS)	Power Input Appx. 1200 W.				Power Input 750 W.			
		Load Impedance 52Ω non-reactive		Load Impedance 150Ω non-reactive		Load Impedance 52Ω non-reactive		Load Impedance 150Ω non-reactive	
		P. A. Tuning (appx)	Antenna Loading No. (appx)	P. A. Tuning (appx)	Antenna Loading No. (appx)	P. A. Tuning (appx)	Antenna Loading No. (appx)	P. A. Tuning (appx)	Antenna Loading No. (appx)
2.0	2.0-2.5	07.0	50	05.8	60	06.9	85 *	06.6	10
2.5	2.0-2.5	12.9	90	11.7	70	12.5	30	12.4	50
2.5	2.5-3.0	07.3	20	05.1	40	07.7	60 *	06.6	15
3.0	2.5-3.0	11.9	50	10.7	65	12.1	15	11.6	40
3.0	3.0-4.0	07.4	10	06.2	30	07.9	60 *	07.1	10
4.0	3.0-4.0	13.8	55	12.8	70	14.0	25	13.4	55
4.0	4.0-6.0	05.8	00	04.6	35	06.5	50 *	05.6	00
6.0	4.0-6.0	14.7	60	14.1	75	14.9	30	14.5	55
6.0	6.0-8.0	11.7	40	10.5	60	12.0	15	11.1	30
8.0	6.0-8.0	16.0	65	15.4	80	16.1	50	15.7	70
8.0	8.0-12	14.1	50	13.5	70	14.3	30	13.9	60
12	8.0-12	18.2	80	17.7	90	18.3	70	17.9	80
12	12-16	17.4	50	16.9	70	17.5	30	17.1	50
16	12-16	20.1	75	20.0	85	20.3	60	20.1	75
16	16-24	16.7	40	16.2	55	16.9	20	16.4	45
24	16-24	20.0	75	19.9	85	20.4	65	20.1	75
24	24-32	17.8	60	17.5	75	17.9	45	17.7	65
32	24-32	20.1	80	20.0	95	20.5	70	20.1	85

The Antenna loading switch is set in position #2 except when indicated by * where position #1 is used.
NOTE: In Bands: 8.0-12, 12-16, 16-24, and 24-32 MCS. The antenna loading switch is not used.

its reading approximates the oscillator frequency. Now set the knob more carefully until the PA grid current is at a maximum.

e). Return the DRIVE control to its fully counter clockwise position, and the METER switch to PA SG.

(7). PA Tuning:

a). Set the PA BAND to the position which includes the final carrier frequency, rotate the MODE switch to TUNE, and turn the FINAL PLATES "ON".

b). Set the antenna loading control to its fully counter clockwise position. Set the antenna loading switch to position 2.

c). Throw the FINAL PLATE switch to ON. Advance the DRIVE control until the PA PLATE current reads 120 MA. Now rotate PA TUNING until a definite dip is obtained in the Plate current. (The PA TUNING may be roughly preset according to Table 3-2).

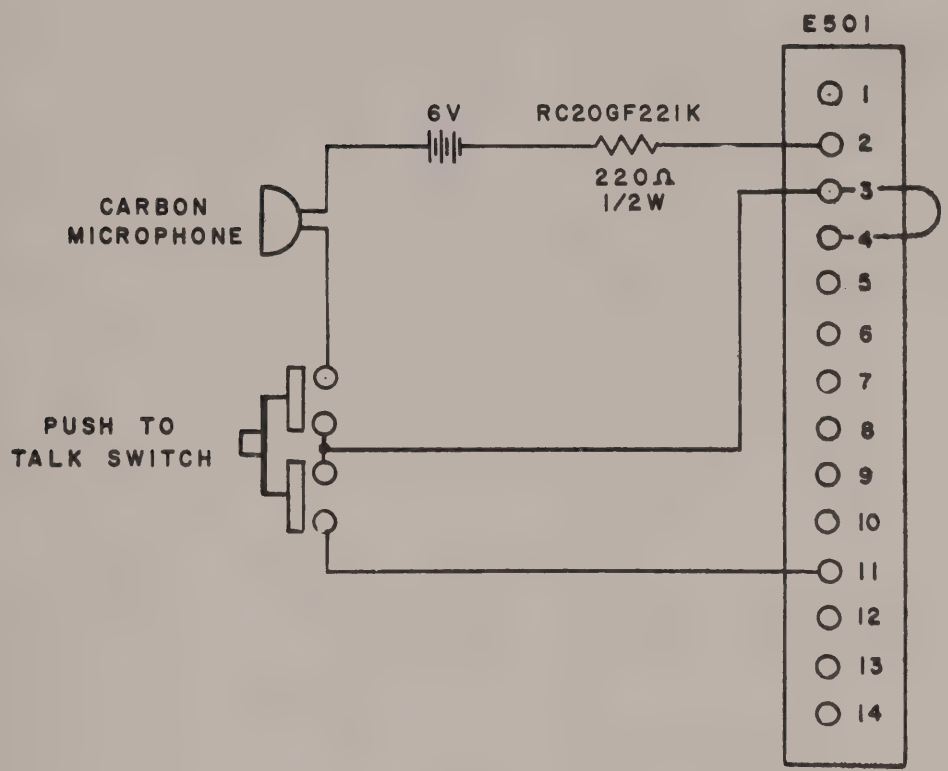
d). The RF OUTPUT meter may be utilized as an aid in tuning. This meter is an output indicator and must not be considered as an absolute value of RF current output.

CAUTION

A SHUNTING BAR HAS BEEN PROVIDED WITHIN THE PA COMPARTMENT FOR SHUNTING THE RF AMMETER THERMOCOUPLE. THIS WILL BE USEFUL WHEN A LOAD OF VERY LOW IMPEDANCE AND HIGH REACTANCE (HIGH STANDING WAVE RATIO) IS TO BE MATCHED. UNDER THESE CONDITIONS, THE UNSHUNTED CIRCUIT WOULD CAUSE THE METER TO "PIN" DUE TO THE HIGH REACTIVE CURRENT IN THE LOAD.

e). Advance the DRIVE knob clockwise until the screen current rises to about 10 MA. Advance the ANTENNA LOADING clockwise until the screen current drops to almost 0 and the plate current begins to rise. Readjust the PA TUNING until the plate current dips again and the screen current rises. Continue to advance the ANTENNA LOADING and DRIVE controls (each time redipping the PA TUNING) until the screen current is 10 MA and the plate current is 250 MA.

The GPT-750 Transmitter may be operated directly from a carbon microphone using the following external circuit.



This circuit shows the use of a D.C. voltage of 6 volts with which a 220 ohm resistor is required in order to maintain a D.C. microphone current of 20-30 ma. If a lower D.C. voltage is more convenient, then the resistance value should be lowered accordingly to maintain the 20-30 ma D.C. current rating. This arrangement energizes the microphone. Most carbon microphones contain a "push to talk" switch as a part of the microphone assembly and this is also shown in this circuit. It is now possible to operate the Transmitter on a "push to talk" basis using the switch on the microphone.

CAUTION

THE DIP MUST BE OBTAINED AT THE LOWEST PA TUNING READING TO AVOID DOUBLING IN THE FINAL. IF THE TABLE IS FOLLOWED, NO SUCH TROUBLE WILL OCCUR.

f). Rotate the MODE switch to the CW-FS position. It is now necessary to key the transmitter in order to read the various currents, and obtain power output. The plate current will now be 500 Ma and the screen current 90 Ma. (P.A. grid current will run between 15 to 30 Ma, depending upon the frequency). If these results are not exactly obtained, the DRIVE control can be slightly advanced to bring up the screen current and the ANTENNA LOADING control can be slightly advanced to increase the plate current. A final adjustment should be made on the PA TUNING for a peak in screen current which is accompanied by a peak in RF output. If the transmitter is fully loaded in this manner, it is much easier to adjust the PA TUNING for a screen current peak then for a plate current dip. The transmitter is now fully prepared to go on the air.

g). The FINAL PLATE switch is then left in the ON position and the TRANSMITTER PLATES switch returned to the STANDBY/REMOTE position. To go on the air it is only necessary to throw the TRANSMITTER PLATE switch to ON and key the transmitter.

(8). Additional helpful information:

a). The absolute settings of the ANTENNA LOADING switch and knob are not definite because this combination also serves to balance out reactances in the antenna system. For this reason, the settings will be different for different antennas and different frequencies. It will be found that the ANTENNA LOADING switch is seldom used in position 1 except in the frequency range of 2-4 Mc.

b). If excessive screen or plate currents are drawn, the overload relay system will trip and may be reset by means of the OVERLOAD RESET.

c). When tuning to the top end of the last two bands (24 or 32 Mc.) it will be necessary to advance the ANTENNA LOADING control to almost its fully clockwise position in order to obtain a plate current dip with the PA TUNING control.

d). In some cases the operator may want to set the transmitter exactly on the same frequency as a signal being received. This is referred to as "receiver spotting" and may be set up as follows:

(1). Tune the receiver to the desired incoming signal.

(2). Turn on the receiver BFO and vary the BFO frequency until a zero beat is obtained with the incoming signal carrier.

(3). Tune up the Model GPT-750 with the exception of the final amplifier (leave the FINAL PLATE switch OFF). The Master Oscillator should be set so that the multiplier output frequency is close to that of the received signal.

(4). Insert about one foot of a four foot length of insulated wire inside the top drawer and close the drawer once again. This will serve to radiate some of the transmitter signal into the receiver.

(5). Pick up the transmitter on the receiver and readjust the MO slightly until a zero beat is heard. The MO is now aligned with the incoming received signal and the remainder of the transmitter may be properly tuned.

(6). It will be possible in some cases, depending upon the strength of the incoming signal, to directly beat the transmitter with the received signal and omit the steps involving the BFO.

C. PHONE OPERATION (Combination B)

1. RF Tuning:

(a). The RF Tuning is exactly that outlined under Paragraph III 2B, CW OPERATION, with the following exceptions:

(1). In TUNE position, the final amplifier screen current should be 5 Ma and plate current should be 200 Ma. This will result in a final amplifier screen current of 90 Ma and plate current of 300 Ma., when the MODE switch is returned to the PHONE position. If these values are not quite obtained the DRIVE and P.A. TUNING controls should be retouched until the proper currents result as described in CW Tuning.

(b). A carbon mike may be employed directly into the 600 ohms audio input, (Pins 1, 2 and 3 of E501) using a suitable battery in series with the mike.

CAUTION

THE TRANSMITTER PLATES AND THE MIKE SHOULD BE SWITCHED "OFF" SIMULTANEOUSLY TO AVOID HARMFUL ARCING IN THE MODULATOR SPARK GAPS.

This is done by using a DPST switch to open the mike circuit and place the transmitter plates in standby condition as follows:

1. One pole of the DPST switch is wired in series with the mike.

2. The other pole is wired across the REMOTE terminals, 10 and 11 of E501.

Using this setup, the TRANSMITTER PLATE switch (on the RTP front panel) must remain in the STANDBY REMOTE position. This simultaneous switching feature is provided when the Model RTC is used.

(c). The Modulator GAIN control should now be advanced until normal speech peaks result in 300 Ma of modulator current. The transmitter is now set for a fully modulated output.

D. FS OPERATION (Combination C)

1. Selecting Proper Excitation

(a). In frequency shift operation there are three ways in which the transmitter excitation can be obtained.

(1). The Model XFK can be driven by any one of the three self-contained crystal positions within the XFK.

(2). Anyone of the three crystal positions within the transmitter can be used to drive the XFK which, in turn, then drives the transmitter multipliers.

(3). The Master Oscillator within the transmitter can be used to drive the Model XFK which, as before, will then drive the transmitter multipliers.

TABLE 3-3. EXCITATION FREQUENCY CHART

MULT BAND	XTAL RANGE	XFK OUTPUT	XTAL FREQUENCY (Mcs.)
2 to 4 Mc.	1.8 to 3.8 Mc.	2 to 4 Mc.	f_o - .2
4 to 8	1.8 to 3.8	2 to 4	(f_o/2) - .2
8 to 16	1.8 to 3.8	2 to 4	(f_o/4) - .2
16 to 32	1.8 to 3.8	2 to 4	(f_o/8) - .2

TABLE 3-4. MASTER OSCILLATOR FREQUENCY CHART

MULT BAND	MULT RANGE	MO RANGE	XFK OUTPUT	MO FREQUENCY
2 to 4	2 to 2.2	2.2 to 2.4	2 to 2.2	f_o + .2
	2.2 to 4	2 to 3.8	2.2 to 4	f_o - .2
4 to 8	4 to 4.2	2.2 to 2.4	2 to 2.2	(f_o/2) + .2
	4.2 to 8	2 to 3.8	2.2 to 4	(f_o/2) - .2
8 to 16	8 to 8.2	2.2 to 2.4	2 to 2.2	(f_o/4) + .2
	8.2 to 16	2 to 3.8	2.2 to 4	(f_o/4) - .2
16 to 32	16 to 16.2	2.2 to 2.4	2 to 2.2	(f_o/8) + .2
	16.2 to 32	2 to 3.8	2.2 to 4	(f_o/8) - .2

(b). If the XFK is to be driven by the MO or crystals within the transmitter:

(1). Throw the DRIVE switch located on the top of the interconnect chassis to the position marked FS EXT.

(2). Throw the OSCILLATOR switch on the RTF front panel to MO if the MO is to be used or throw this same switch to the proper crystal position if crystal excitation is to be used.

(3). The Master Oscillator within the transmitter can be used to drive the Model XFK which as before, will then drive the transmitter multipliers.

(c). If the XFK is to be driven by the MO or crystals within the transmitter:

(1). Throw the DRIVE switch located on the top of the interconnect chassis to the position marked FS EXT.

(2). Throw the OSCILLATOR switch on the RTF front panel to MO if the MO is to be used or throw this same switch to the proper crystal position if crystal excitation is to be used.

(d). If the XFK is to be driven by its own internal crystals:

(1). Throw the DRIVE switch on the top of the interconnect chassis to the position marked FS INT.

(2). Simply follow the procedure outlined in the XFK instruction book.

2. Choosing the Excitation Frequency:

(a). Crystal Operation: Whether the crystals be located in the transmitter or the XFK the crystal frequency is chosen according to Table 3-3. In all cases the upper sideband will be chosen as called for in the XFK instruction manual.

(b). MO operation: The Master Oscillator frequency is chosen according to Table 3-4.

3. Tuning procedure in FS:

(a). Set up the XFK in the manner outlined in the XFK instruction manual with the one exception noted immediately above.

(b). Tune the transmitter exactly as called for under CW Operation, while taking note of the fact that the multipliers are now being driven by the XFK.

E. OPERATION IN SINGLE SIDEBAND: (Combination D)

1. Setting Up:

(a). Throw the SSB switch (located on top of the multiplier chassis) to SSB from its Normal position.

(b). If the sideband exciter is to be driven by the MO within the transmitter throw the DRIVE switch (located on top of the Interconnect Chassis) to FS Ext. If the sideband exciter is to be driven by its own internal frequency source, throw the DRIVE switch to FS INT.

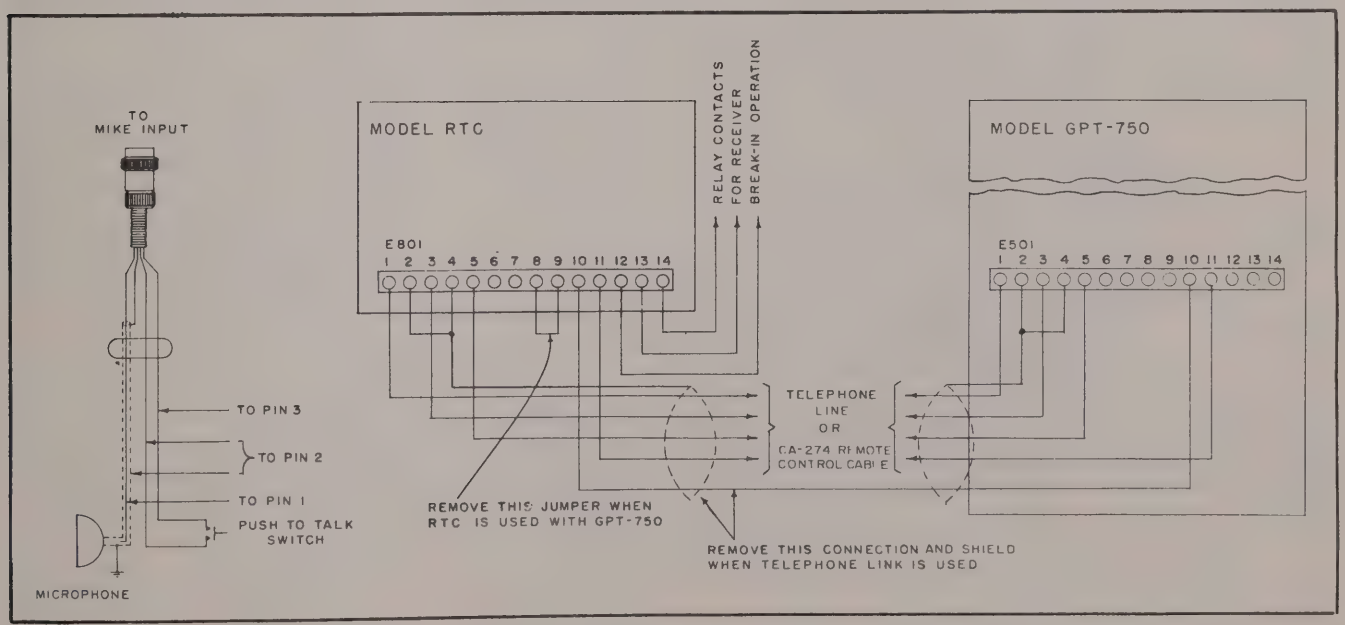

TO MIKE INPUT
MODEL RTC
RELAY CONTACTS FOR RECEIVER BREAK-IN OPERATION
E801
1 2 3 4 5 6 7 8 9 10 11 12 13 14
MODEL GPT-750
E501
1 2 3 4 5 6 7 8 9 10 11 12 13 14
TO PIN 3
TO PIN 2
TO PIN 1
PUSH TO TALK SWITCH
MICROPHONE
TELEPHONE LINE OR CA-274 REMOTE CONTROL CABLE
REMOVE THIS JUMPER WHEN RTC IS USED WITH GPT-750
REMOVE THIS CONNECTION AND SHIELD WHEN TELEPHONE LINK IS USED

Figure 3-9. Interconnect, Model RTC to GPT-750

(Refer to Figure 3-8 for internal and external cable connections).

2. Choosing the Excitation Frequency:

(a). The manner in which the excitation frequency is chosen is dependent upon the Sideband Exciter used to drive the transmitter. In the case of the TMC Model SBE-1, Single Sideband Exciter this procedure is thoroughly outlined in the equipment instruction book.

3. Tuning the Transmitter:

(a). When using the SSB exciter for single sideband operation with or without the reinserted carrier:

(1). Follow the general procedure outlined in CW Operation with the following exceptions:

a). The drive must now be adjusted in the Sideband Exciter rather than at the Model RTF front panel. (The SSB switch, when in the SSB position, removes the transmitter drive control from the circuit so that the driver will always operate with least distortion).

b). Obtain single tone drive from the SSB exciter and adjust its drive control to the point where PA grid current just begins to flow. Reduce the drive slightly from this point.

c). Load and tune the PA so that the final results yield a PA plate current of 450 Ma and a PA screen grid current of about 20 to 30 Ma. Keep in mind the fact that the drive must always be reduced to the point where no PA grid current flows.

d). The transmitter proper is now tuned up. The remaining operational procedure is covered in the Sideband Exciter instruction manual.

(b). When using the SSB Exciter for CW Operation:

(1). Simply increase the Sideband Exciter drive control to the point where PA grid, screen grid, and plate currents are identical to those outlined under normal CW Operation. Keying must now take place within the Sideband Exciter.

F. OPERATION WITH THE MODEL RTC:

1. CW Operation:

(a). Refer to Figure 3-9

(b). Plug the key into the jack marked KEY on the Model RTC front panel.

(c). Tune the Model GPT-750 exactly as outlined under Paragraph III 2.B. Operation procedure.

(d). On the transmitter, return the TRANSMITTER PLATES switch to STANDBY/ REMOTE and leave the FINAL PLATE switch ON. All transmitter plates may now be controlled from the Model RTC by means of the TRANSMITTER PLATES switch on its front panel.

(e). If side tone is desired (that is, the monitoring of the keying characteristics or "fist") it is only necessary to turn the MCW or SIDETONE switch on the RTC front panel to one of the three side tone frequencies and to plug a pair of phones into the PHONES jack. The GAIN control regulates the amplitude of the side tone.

2. Phone Operation;

(a). The transmitter must be tuned as outlined in Paragraph III 2.C. with the exception that the Modulator GAIN control is left in the fully counter-clockwise position.

(b). For Normal Phone Operation:

(1). On the Model GPT-750 the TRANSMITTER PLATES switch must be left in the REMOTE/STANDBY POSITION and the FINAL PLATE switch in the ON position. It will then be possible to control the transmitter plates from the Model RTC. Turn the Modulator Gain control fully counter clockwise.

(2). Either depress the PUSH-TO-TALK switch on the microphone stand or throw the STANDBY REMOTE/OPERATE switch to OPERATE on the RTC.
For normal modulation the MCW or SIDETONE switch should be set at NORMAL and the GAIN control should now be advanced clockwise until the meter on the RTC front panel reads 100% modulation on speach peaks.

(3). Modulate the Model RTC with voice peaks and then advance the Model RTM GAIN control until the Modulator current reaches 300 Ma on these peaks. The set up is now completed for remotely controlled modulated output.

(4). Return the STANDBY REMOTE/ OPERATE switch to the STANDBY REMOTE position. Control of the transmitter plates will now be on the Press-To-Talk switch on the microphone stand.

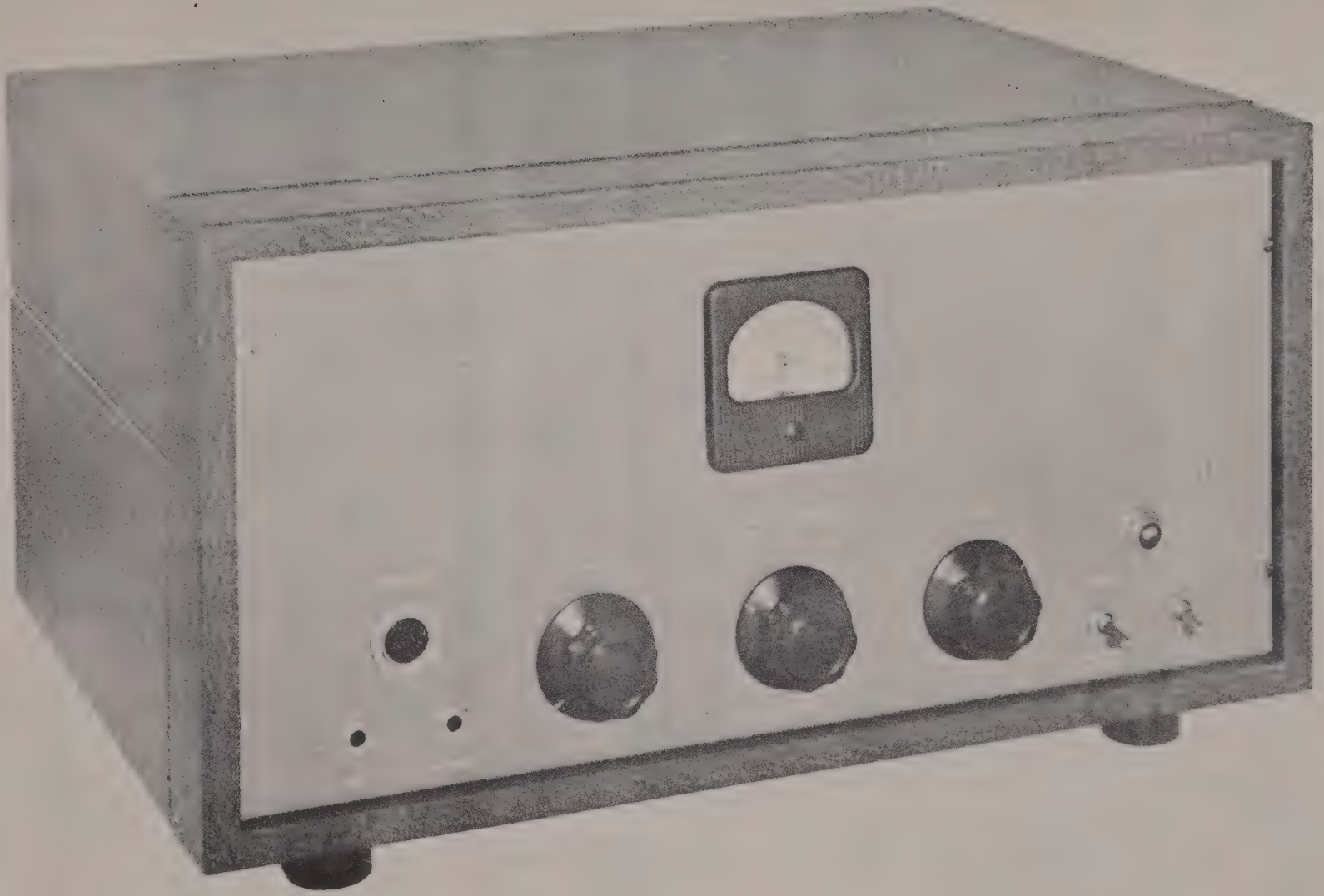


Figure 3-10. Front View, Model RTC

(c). For Speech Clip Operation:

(1). Proceed as outlined under normal phone operation except that the MCW or SIDETONE switch is now rotated to CLIP and the GAIN control is set for 100% modulation on the Modulation Meter after the desired degree of clipping has been obtained by means of the CLIPPER control.

(2). The degree of clipping can be monitored by plugging phones into the PHONES jack.

(d). For MCW Operation:

(1). Procedure here is, once again, the same as that outlined under Normal Phone Operation except that the transmitter is modulated by a keyed tone within the Model RTC.

(2). The transmitter will now be MCW keyed and the carrier may be removed from, or placed on, the air by means of the STANDBY REMOTE/OPERATE switch.

(3). On the Model RTC:

a). Throw the MCW or SIDETONE switch to one of the three tones available.

b). Throw the STANDBY REMOTE/OPERATE switch to OPERATE.

c). Depress the key and set the GAIN control so that the modulation meter indicates 100% modulation.

(4). On the Transmitter:

a). Set the Modulator GAIN control for 300 Ma of modulation current.

G. OPERATION AT REDUCED POWER

The Model GPT-750 is designed so that its power output is readily adjustable from a minimum of a few watts to the maximum rated output. This is accomplished by means of the drive control which is continuously adjustable, and which may be set as follows:

1. Tune the transmitter as prescribed in CW/FS or Phone (not SSB) operation, as the desired case may be. This results in a starting point of approximately 900 watts output on CW/FS or 500 watts output on Phone.

2. Reduce the drive control so that the screen current drops to approximately 45 ma.

3. Decrease the antenna loading until the screen current rises again to 90 ma after the PA tuning has been reset for resonance.

4. Repeat step #3 until the desired plate power input is obtained. (Plate power input = 2500 x plate current in amps.)

NOTE

BELOW 500 WATTS INPUT POWER THE SCREEN CURRENT SHOULD BE ADJUSTED FOR A LOWER VALUE IN PROPORTION TO THE AMOUNT OF POWER INPUT.

P Input	I_{sg}
500 watts (and above)	90 ma
400 watts	70 ma
300 watts	55 ma
200 watts	35 ma
etc.	

Because the transmitter plate impedance will be higher at lower power input it must be kept in mind that the tuning chart will now be only an approximation of the final result.

5. For Phone operation the modulator drive should be set so that on speech peaks the modulator current is approximately the same as the final plate current.

6. For Single Sideband Operation the drive must be reduced at the exciter itself, as is fully discussed in the paragraph E above in Single Sideband Operation.

H. OPERATION WITH THE MODEL TAC

When it is necessary to match a balanced load to the transmitter or when harmonic rejection requirements are extremely stringent, the Model TAC, Antenna Tuning Unit should be used.

1. If the conditions are as follows:

a). The output is 900 watts or greater and the load is 170 ohms or less.

b). The load is less than 200 ohms with a high reactive component (SWR of 4/1 or greater).

2. Then proceed as follows:

a). Remove cover from Model TAC

b). Connect shunts across each meter as prescribed in the Model TAC Instruction Book.

c). Replace the cover.

3. For all loading conditions, other than shown in paragraph 1 above no change within the Model TAC is necessary.

4. Tuning.

a). Set the Model TAC front panel controls as outlined in its instruction book.

b). In the TUNE position proceed with loading the transmitter as shown in the OPERATION section of this book.

c). Load the transmitter to one half the prescribed TUNE condition final plate current. Do this by means of the LOADING control on the transmitter without touching any of the Model TAC controls.

d). On the Model TAC vary the LOAD ADJUST and TUNING controls for a combination of minimum transmitter RF output current with proper TUNE conditions PA plate and screen currents. The minimum RF current condition indicates that the Model TAC is presenting a "flat" line to the transmitter while proper plate and screen currents indicate correct loading of the transmitter.

WARNING

WHENEVER ANY OF THE CONTROLS ON THE MODEL TAC OR THE LOAD CONTROL ON THE GPT-750 ARE MOVED, THE PA TUNING MUST BE RESET FOR RESONANCE.

e). Switch to full power in either CW or Phone, as the case may be. Retouch all controls until, once again, PA plate and screen currents are proper for full power conditions while the transmitter RF ammeter is at minimum (usually in the range of 2 to 5 amps at 900 watts output). The Model TAC meters will then indicate load current.

f). Retouch the PA TUNING and the procedure is complete.

SECTION IV
MAINTENANCE

1. GENERAL

The TMC Model GPR-750 has been designed for rugged, long term trouble free duty. Familiarity with the transmitter will require only routine attention. It is recommended that any maintenance to the equipment be performed by a competent maintenance technician.

The location of the tubes and components in the Model GPR-750 are shown in Figures 4-1 through 4-17.

2. OPERATORS MAINTENANCE

A. REPLACEMENT OF FUSES

It is not necessary to "shut down" the transmitter to replace fuses if recommended type is used. In this way the heater voltage supply is not interrupted and recycling of the time delay relay is unecessary.

(1). If a zero beat cannot be obtained in the calibrate condition and the ZERO BEAT indicator does not light then it is evident that the LOW voltage fuse is "blown".

(2). If a zero beat cannot be obtained in the calibrate condition and the ZERO BEAT indicator lights, then the mid voltage fuse is most likely at fault.

(3). When the M.O. OUTER OVEN indicator light has not cycled for about twelve minutes or more then the OVEN fuse is "blown".

(4). The modulator power fuse failure is evidenced by the POWER indicator being "out".

(5). Refer to the Instruction book for XFK or SBE maintenance.

CAUTION

IN EACH OF THE ABOVE CASES IT IS ASSUMED THAT THE POWER INDICATOR AND ALL TUBES INVOLVED HAVE NOT FAILED. THIS POSSIBILITY MUST ALWAYS BE INVESTIGATED BEFORE "SHUTTING DOWN" THE EQUIPMENT.

B. REPLACEMENT OF TUBES

WARNING

SHOULD IT BECOME NECESSARY FOR ANY REASON TO MAKE REPAIRS OF ANY KIND ON THE TRANSMITTER TURN OFF THE MAIN POWER BREAKER AND PROCEED AS FOLLOWS:

1. USING A HIGHLY INSULATED SHORTING BAR, AND WITH EXTREME CAUTION SHORT THE PLATES OF V102 OF THE RTF TO GROUND.

OR

2. SHORT ONE OF THE HIGH VOLTAGE CONDENSERS C610, C611 OR C612 TO GROUND

THE ABOVE PERMITS IMMEDIATE DISCHARGE OF THE HIGH VOLTAGE AND INSURES SAFE HANDLING OF THE UNITS.

In the event of a service interruption, all tubes, with the exception of those at the rear of the oven, should be checked. It is rarely necessary to touch V301 and V302, because they are intentionally operated in a very conservative manner. If, however, one of these tubes fail or is suspected of being faulty, the following precaution shall be taken note of: UNDER NO CIRCUMSTANCES SHOULD EITHER V301 OR V302 BE REMOVED FROM ITS SOCKET WITHOUT FIRST TURNING OFF THE MAIN POWER BREAKER. This will serve to protect the regulated filament circuitry.

When tubes are removed, tested, and reinserted in place, care should be taken to install all those plate caps and tube shields which were also removed.

3. PREVENTIVE MAINTENANCE

A. GENERAL

In order to prevent actual failure of the equipment due to corrosion, tube failures, dust

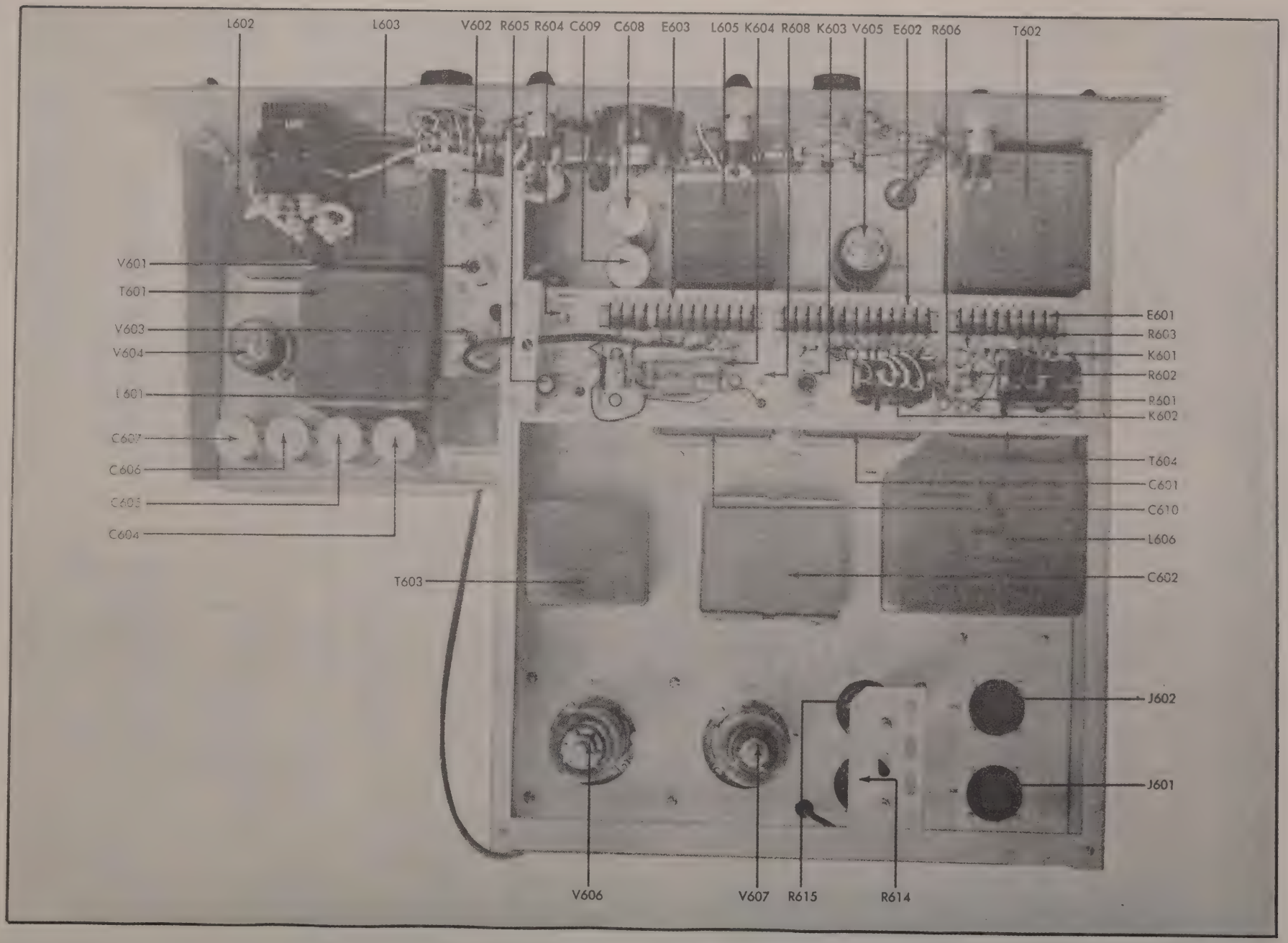


Figure 4-1. Top View, Model RTP (Relay Chassis Cover Removed)

or other destructive ambient conditions, it is suggested that a definite schedule of preventive maintenance operations be set up and adhered to. In this manner the greatest percentage of potential failures will be detected and corrected at the user's discretion before they can interrupt service at some less opportune moment.

B. DIRT, Etc.

Remove the equipment from the rack, and thoroughly inspect the inside of all chassis, with the exception of the oven enclosed elements, for signs of dirt, dampness, molding, charring, or corrosion. Correct any defect found. Clear carbon tetrachloride is a good cleansing agent for this purpose for Navy use: dry cleaning solvent 140F, F.S.N. WM6850-274-5421.

Recommended time interval: SEMI-ANNUALLY

C. VOLTAGE AND CHECKS:

Check all DC and AC voltages with the exception of the oven enclosed elements as indicated on the respective tube voltage data chart (Table 5-1) and investigate any serious discrepancies.

Recommended time interval: SEMI-ANNUALLY.

D. TUBE CHECKS:

Test one tube at a time in a reliable tube tester, replacing the tube in the socket from which it was removed if its measured characteristics are within the manufacturer's tolerances. Discard only those tubes which are found to be below par.

Recommended interval: QUARTERLY.

E. LUBRICATION:

Check all the gears which are contained in the region between the front panel and the oven box. These are the two gears associated with the calibrate control and the two right angle gears connecting the counter with the master oscillator tuning control.

Also check the right angle gear located on the drive switch shaft, the PA TUNING counter gears, PA tuning control stop assembly, and particularly the 45 degree helical gears which couple PA TUNING control to C113, the main tuning capacitor.

If any of these units show signs of becoming dry, coat them heavily with molybdenum disulphide compound such as that made by the Alpha Corporation of Greenwich, Connecticut and referred to by the trade name of Molycote-Type G.

Recommended time interval: EVERY TWO YEARS.

F. MECHANICAL:

Carefully inspect for loose screws or components, especially those used to hold down ground terminals at tube sockets, etc. Tighten all screws which are deemed to be loose.

Carefully inspect all set screws on all shaft couplings, especially those in the region between the front panel and the oven box. A set of allen wrenches have been clamped to side plate of the RTF and these tools should be used to tighten all loose set screws. DO NOT LOOSEN ANY SET SCREWS-BE CAREFUL NOT TO DISTURB THE CALIBRATED RELATIONSHIP BETWEEN THE MASTER OSCILLATOR DIAL AND THE SHAFT FROM THE OVEN BOX.

Recommended time interval:
EVERY SIX TO TWELVE MONTHS, DEPENDING UPON THE TYPE OF SERVICE AND THE DEGREE OF VIBRATION ENCOUNTERED IN THAT SERVICE.

4. CALIBRATION

A. GENERAL

During the initial calibration the MO is set so that relatively little rotation of the CALIBRATE control is necessary to correct the dial at any particular check point. As the unit continues to age and experiences varying degrees of shock and vibration, some increase in this degree of rotation may occur. If, after the dial has been calibrated at 2 Mc., more than two complete revolutions of the CALIBRATE control are necessary to calibrate any other 50 Kc check point on the dial, then the ends of the dial should be reset by the procedure outlined below:

If sufficient P.A. grid current cannot be obtained, while tuning the driver (multiplier stages) in spite of replacing tubes, realignment of the multiplier is then essential. If all shaft screws are kept tight by periodic inspection, the P.A. tuning section will seldom require adjustment.

WARNING

THE FOLLOWING OPERATIONS

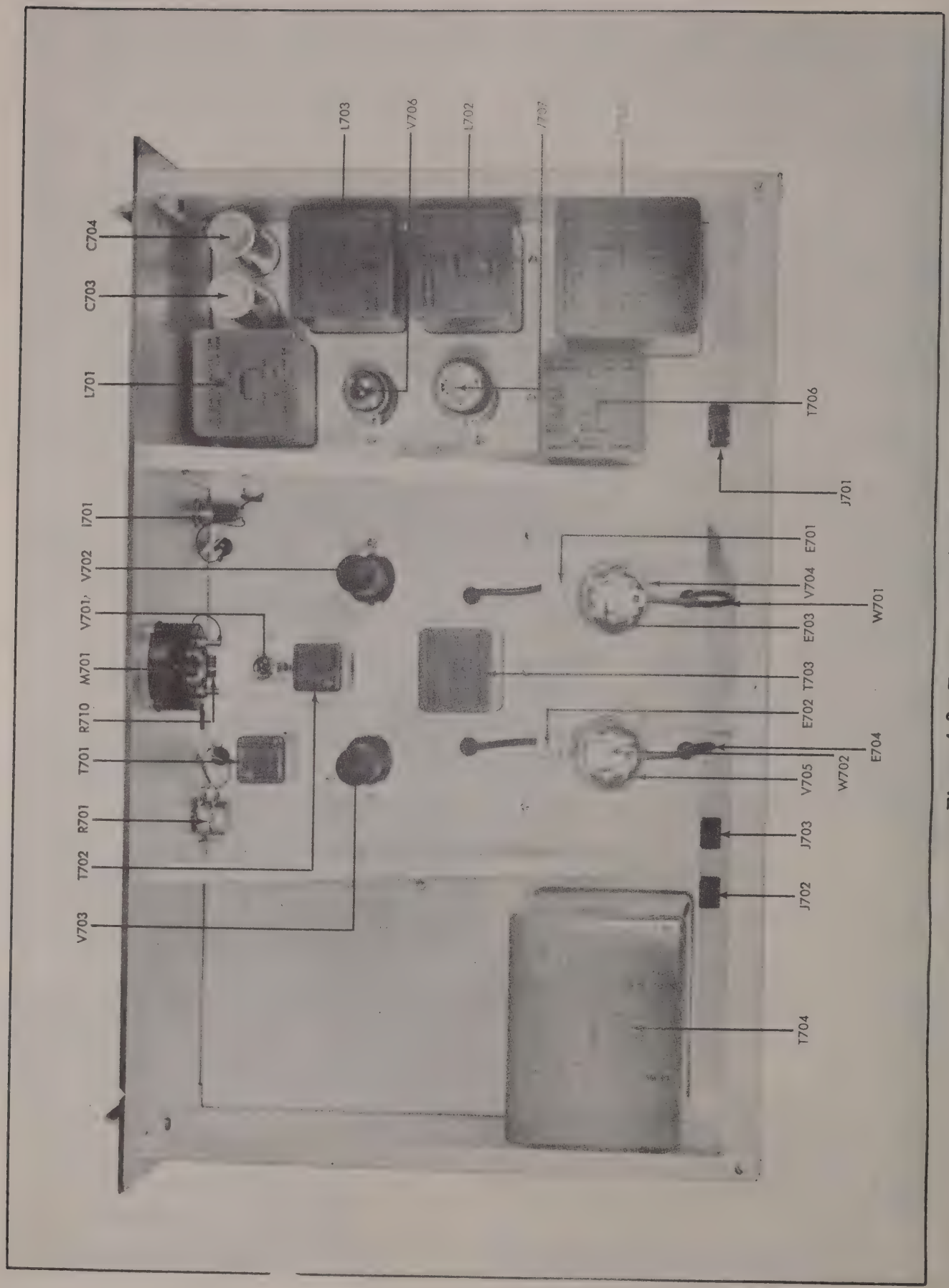


Figure 4-2. Top View, Model RTM

SHOULD BE PERFORMED BY DULY AUTHORIZED AND PROPERLY INSTRUCTED PERSONNEL ONLY.

B. THE 100 Kc STANDARD:

In order to correctly perform this operation it is necessary to obtain either a communication receiver or a primary standard. The receiver must be capable of receiving radio station WWV which is operated by the Central Radio Propagation Laboratory, National Bureau of Standards, Washington, D.C. This station emits a carrier of extreme frequency stability at 2.5, 5, 10, 15, 20 and 25 Mcs for precisely such purposes as the calibration of communications equipment. Allow at least a SIX HOUR WARM-UP PERIOD and proceed as follows:

(1). Using the receiver, pick up WWV. It is preferable to use the 2.5 or 5 Mcs signal, if either can be obtained at the particular location being used.

(2). Set the OSCILLATOR switch to CAL. Coil one end of a piece of hook-up wire around C-201 and couple the other end loosely into the antenna post of the receiver. Turn the TRANSMITTER PLATES switch "ON".

(3). Tune the MO in the region of 2.5 Mcs and obtain a zero beat between the MO and WWV signal. Since communication receivers are almost never designed for greatly extended low frequency audio response, it is useless to attempt to obtain a beat indication through the use of phones. Instead, it is suggested that some form of "S" meter be used. If the receiver has no such self-contained device, it can readily be made by a microammeter in series with a suitable resistance directly across the detector D.C. output.

When zero beat is approached and the coupling from the MO to the receiver antenna is proper, deep and clearly discernible dips will be seen on the "S" meter.

(4). Now, while observing the Zero Beat indicating lamp on the front panel, set C311 until a zero beat has been obtained between the MO and 100 Kc standard. C311 can be adjusted through a small port near the thermostat at the rear of the oven box. When both beats can be observed simultaneously to be within a few cycles of the zero point, then a satisfactory calibration has been made. This means, in reality, that the 100 Kc standard has been set against WWV with the MO serving only the function of intermediary. When a primary standard is available, the 100 Kc oscillator may be adjusted directly against the standard to an accuracy of at least one part per million. In this case, the 100 Kc output may be obtained at J201 and fed into the standard, thus eliminating the need for a receiver or the master oscillator as an intermediary.

The frequencies with which the above operations should be performed is purely a function of the type of service to which the unit is subjected, For some base station installations, intervals of six months will be adequate, however, for more rugged conditions experience may indicate the need for a proportionately shorter interval.

C. THE MASTER OSCILLATOR

Before attempting to adjust the Master Oscillator, the full procedure outlined in Paragraph B. above, must be followed.

(1). Set the OSCILLATOR switch in its CAL position and the TRANSMITTER PLATES "ON".

(2). Set the Master Oscillator dial at 2,000,000 while being careful to note the direction of approach.

(3). Now, rotate the dial to 4,000,000 and approach this point from the same direction used previously. If, for example, the first point was approached from 2,002,000 then the second point must be approached from 4,002,000.

(4). Insert a screwdriver through the capped hole adjacent to the CALIBRATE knob and adjust C303 for zero beat. This operation should be done while picking the Oscillator up on a convenient receiver to make certain that C303 is being varied in a manner which brings the Oscillator frequency towards the 4 Mc zero beat and not in the direction of a neighboring 50 Kc checkpoint. It should never be necessary to vary the C303 control more than a few complete revolutions.

(5). Repeat the total procedure outlined above, i.e., adjusting the CALIBRATE knob at 2 Mc and C303 at 4 Mc, until it is possible to obtain a zero beat at both 2 and 4 Mcs until further adjustment is unnecessary. The ends will then be correct and the CALIBRATE knob will be closest to its correct mean position.

Once this procedure has been completed, the button should be replaced and not disturbed again until a re-calibration is deemed necessary. This operation is sometimes required after the first year of service and then seldom performed again, depending once again, upon the type of service.

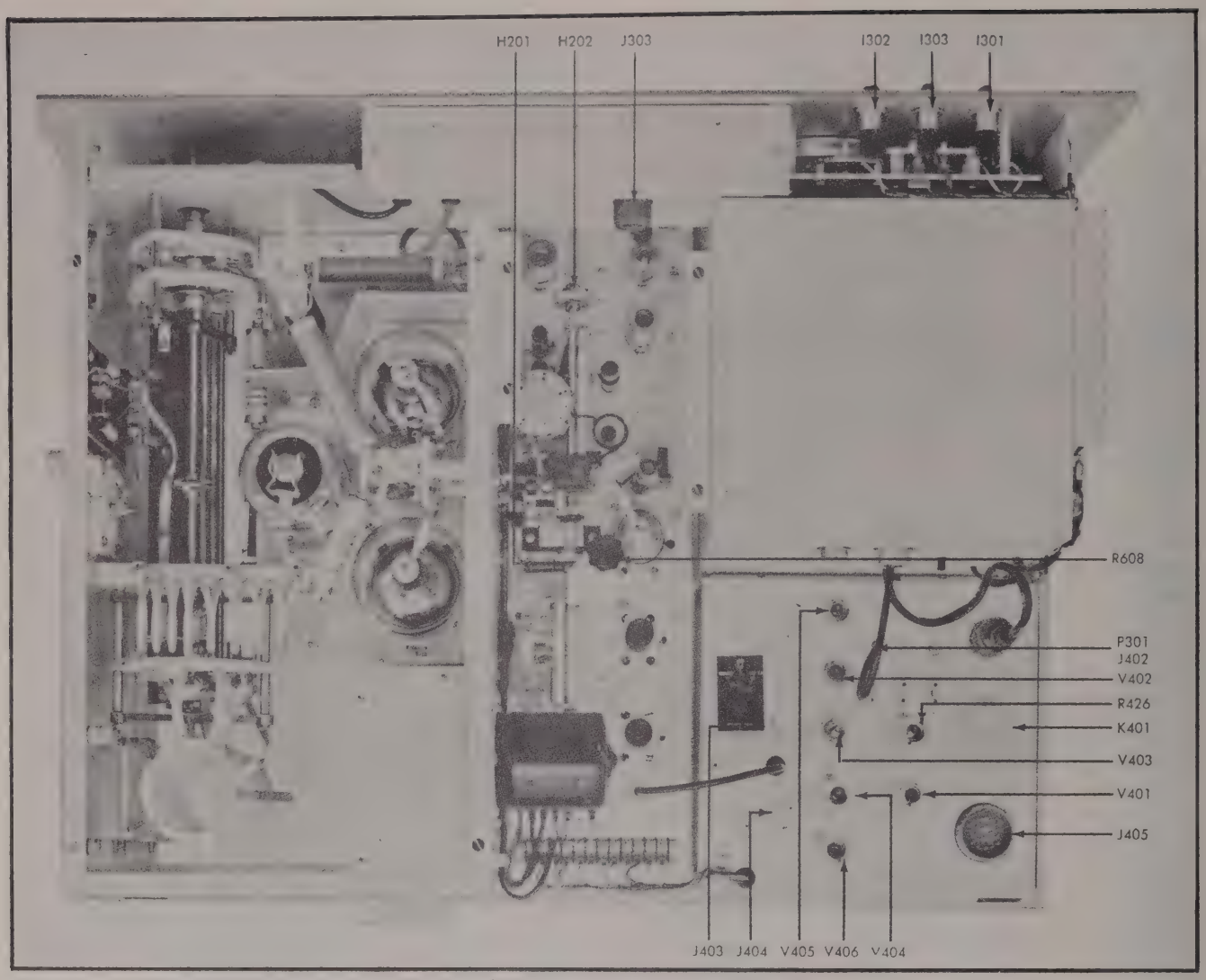


Figure 4-3. Top View, Model RTF

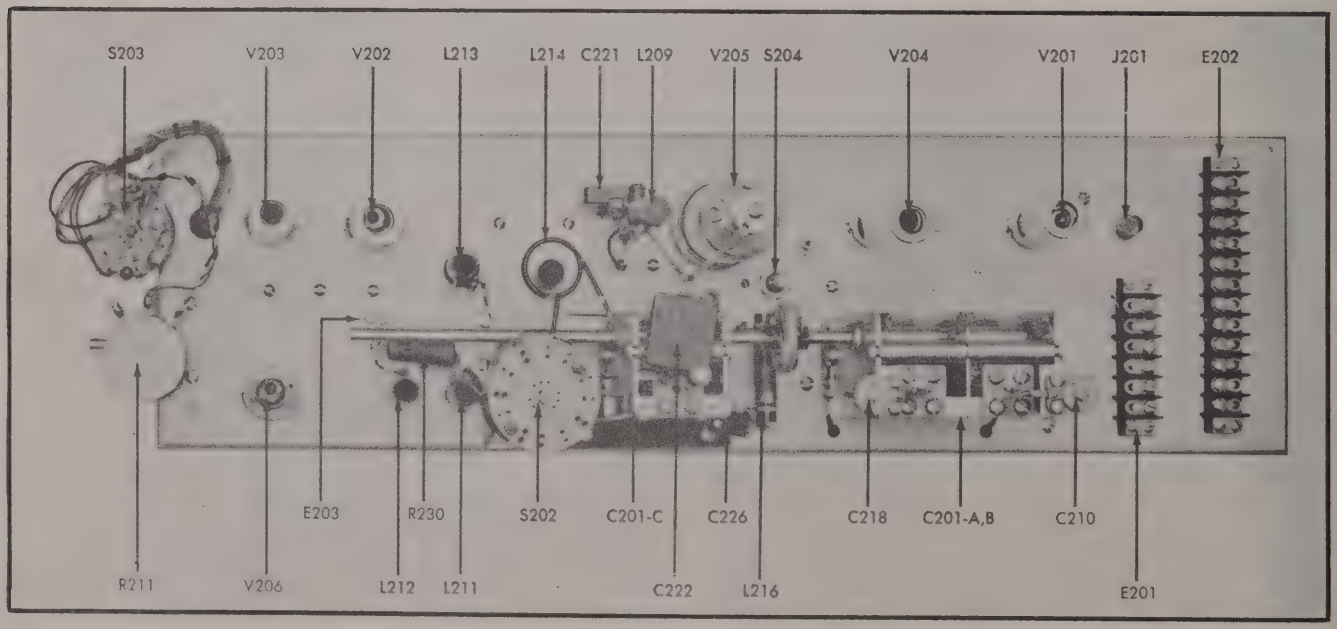


Figure 4-4. Top View, Multiplier Sub-chassis

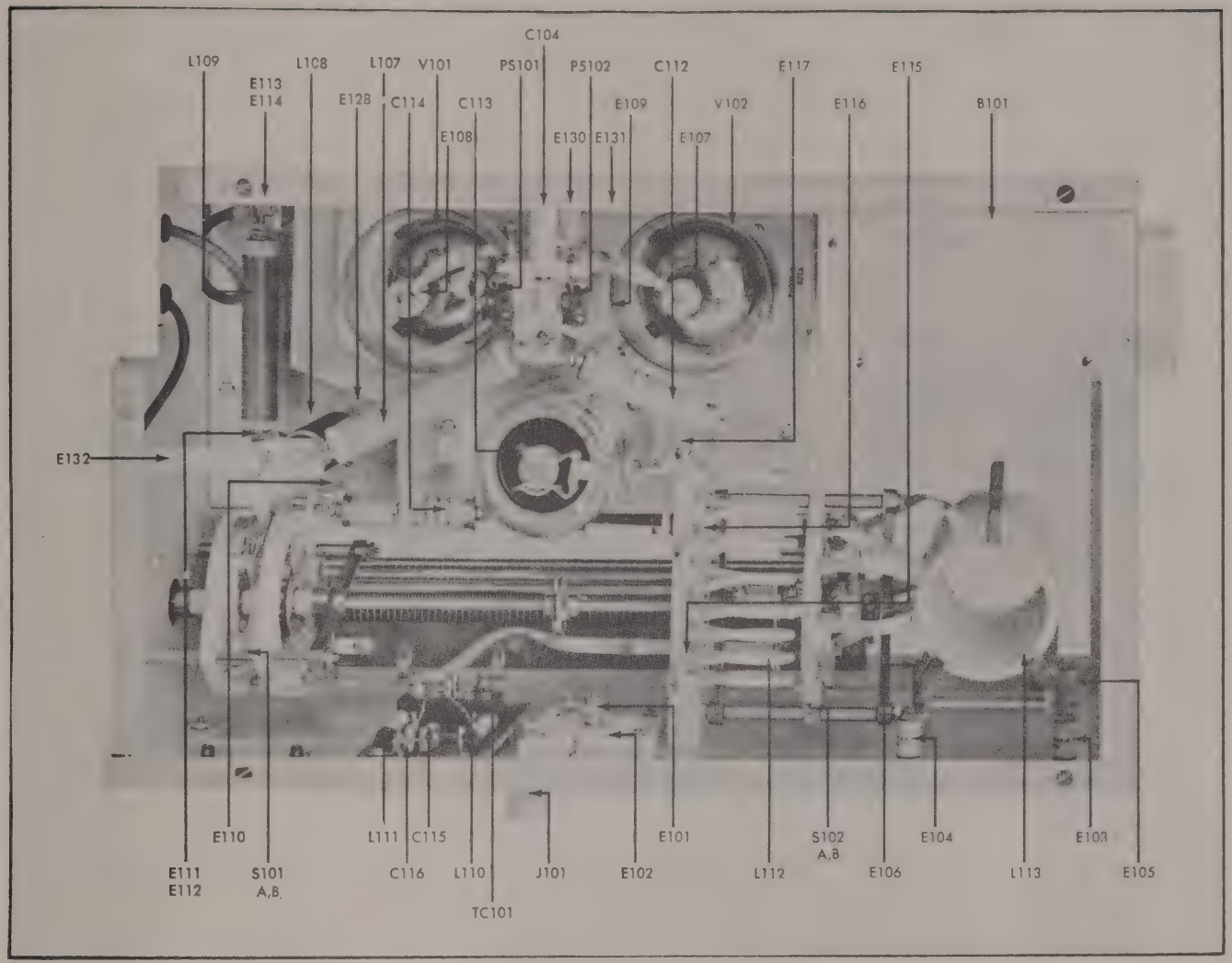


Figure 4-5. Top View, P.A. Sub-chassis

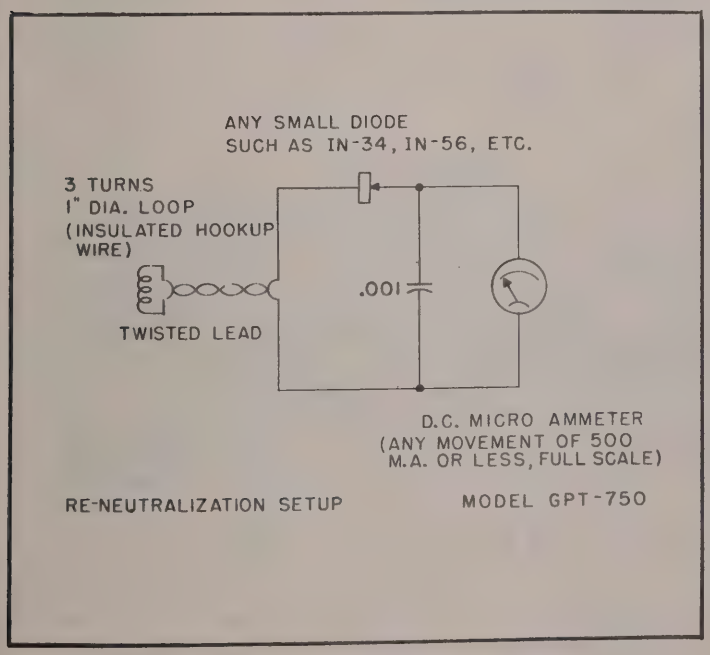


Figure 4-6. Reneutralization Setup

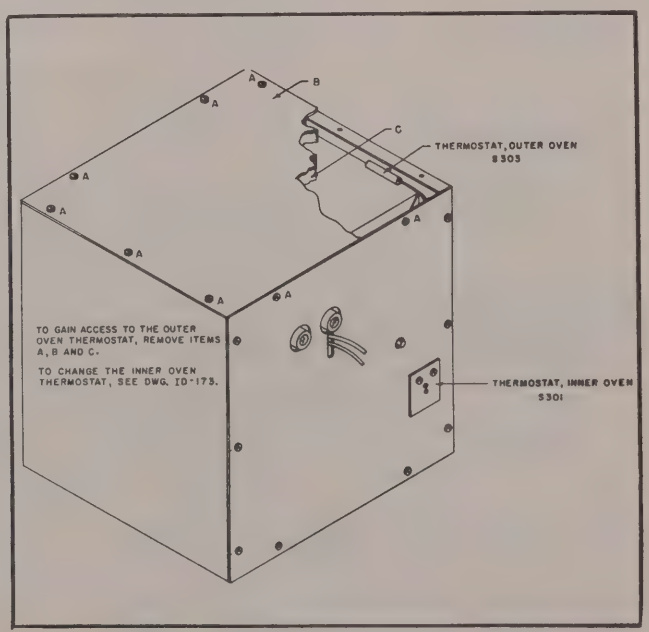


Figure 4-7. MO Oven Thermostat Locations

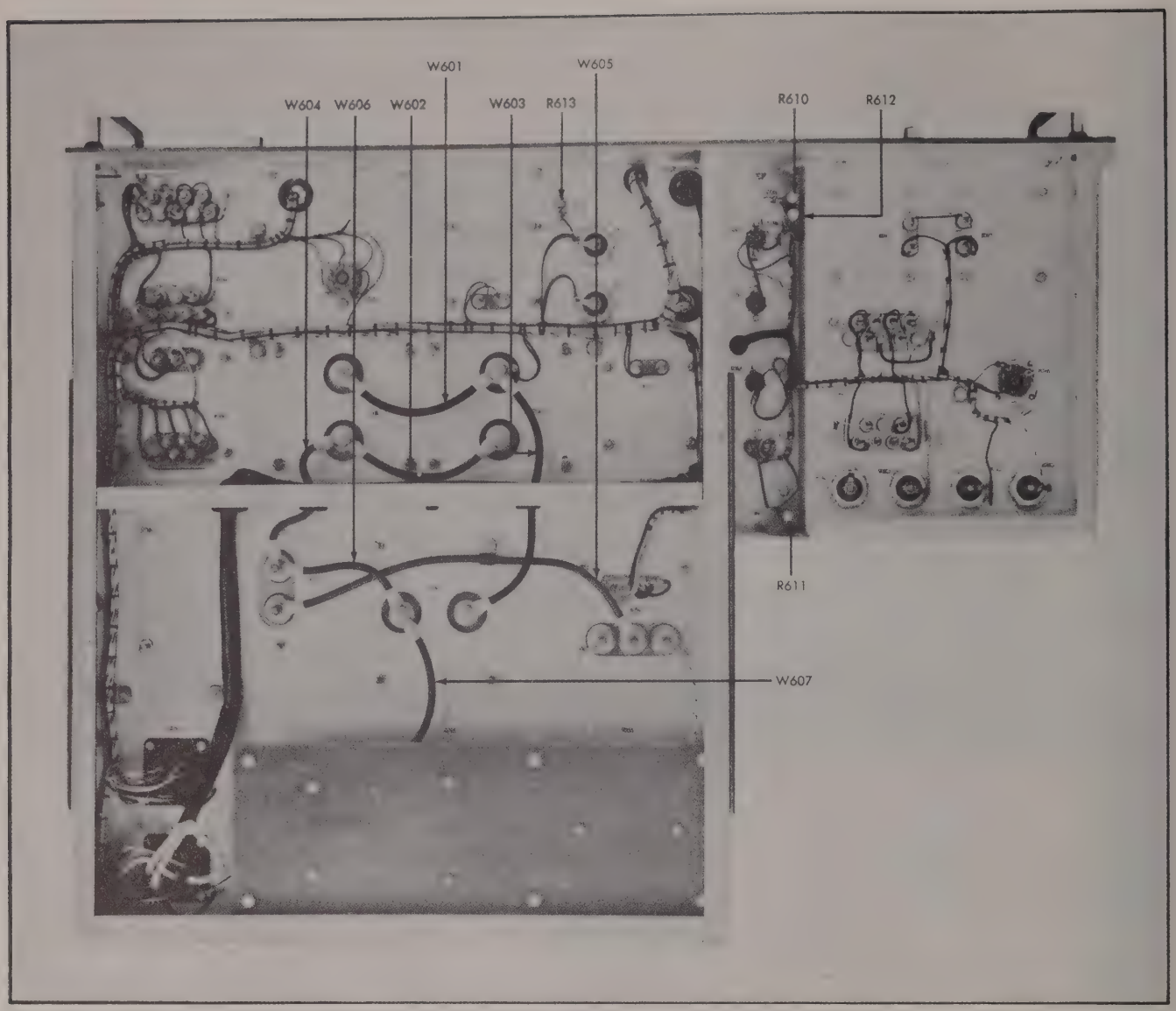


Figure 4-8. Bottom View, Model RTP

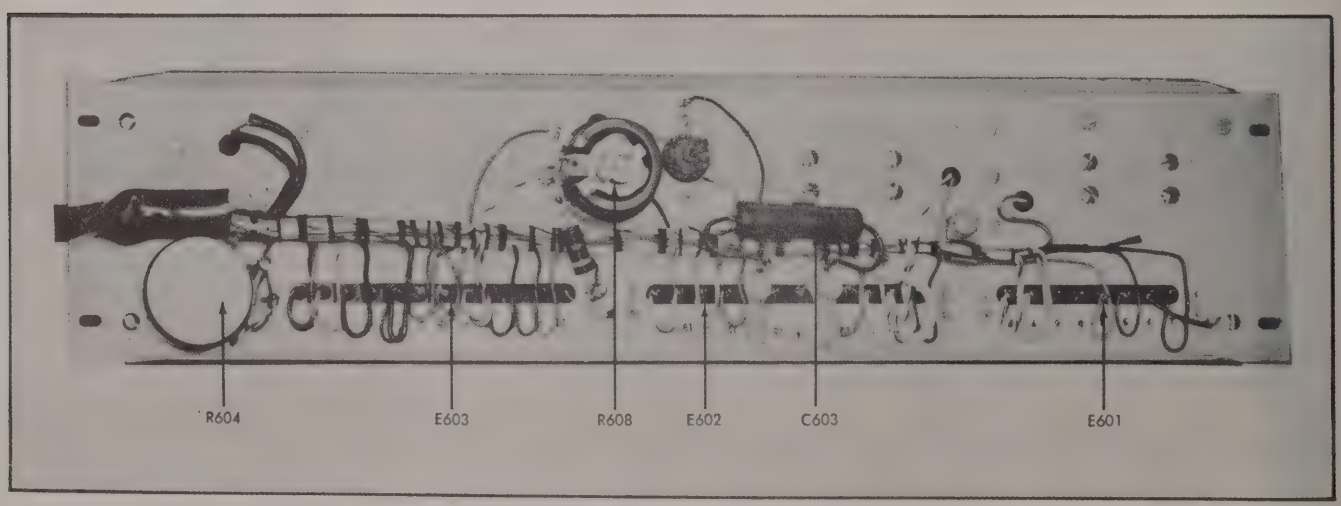


Figure 4-9. Bottom View, Relay Sub-chassis

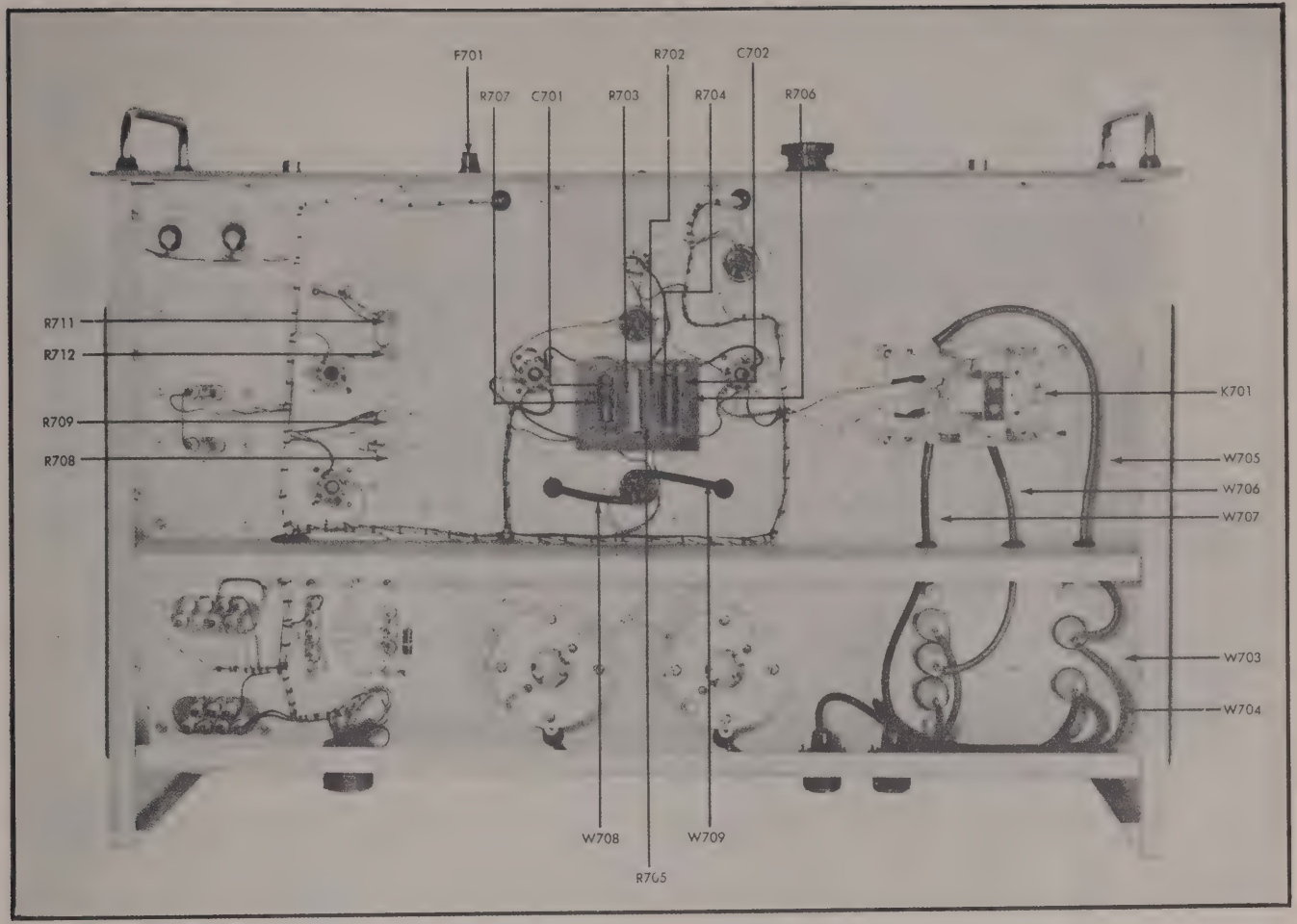


Figure 4-10. Bottom View, Model RTM

D. ALIGNMENT OF MULTIPLIERS AND DRIVER

The realignment of these stages is rarely required except when one of the components associated with the tank circuits is replaced.

CAUTION

THE FINAL PLATE SWITCH MUST REMAIN IN THE OFF POSITION THROUGHOUT THE ALIGNMENT PROCEDURE.

Proceed as follows:

(1). Pull out the RF deck until the lock buttons engage to prevent further sliding.

(2). Set the DRIVER switch (S402) in the NORMAL position (located on interconnect chassis).

(3). Rotate the DRIVE control full clockwise to permit maximum drive.

(4). To reset the DRIVER TUNING points loosen the set screws on the vernier, set the tuning condenser to full mesh, set the pointer in the horizontal position to the left. Tighten set screws.

(5). Set the DRIVER BAND switch in the 4-8 position and the DRIVER TUNING control to the 2.0 mark.

(6). The inter-lock switch must now be depressed and held down by some mechanical means to complete the circuit and allow the remaining portion of the alignment to be accomplished.

(7). Throw the MAIN POWER circuit breaker "ON".

(8). Set the OSCILLATOR function switch to CAL and set the MO for 4 Mc.

(9). Calibrate the Master Oscillator (See Paragraph 4. C. of this section).

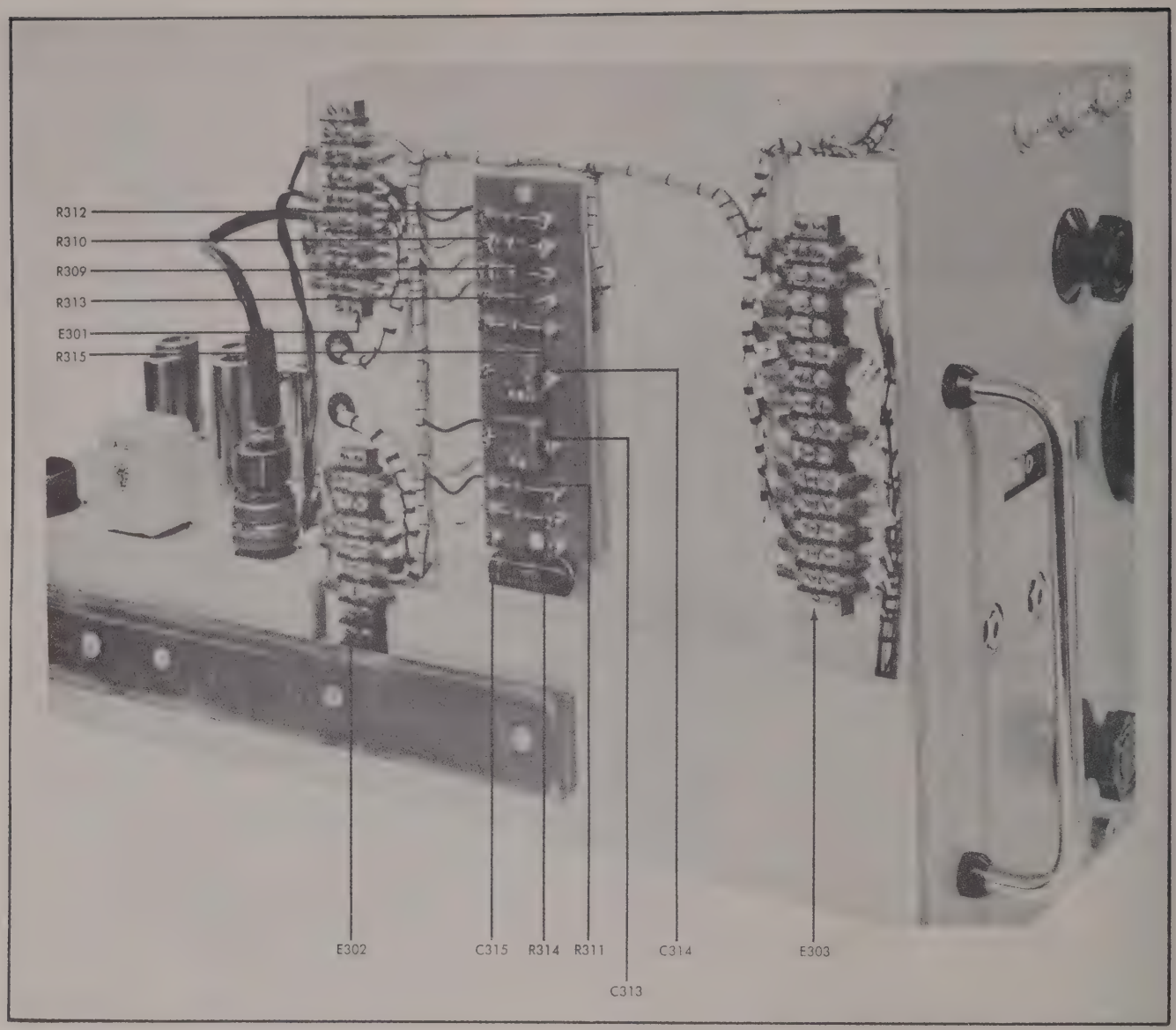


Figure 4-11. Side View, MO Oven

(10). Set the OSCILLATOR switch to MO.

(11). Set the MODE switch to TUNE.

(12). Throw the TRANSMITTER PLATES switch "ON".

(13). Set the METER switch to DR PL.

(14). Adjust the L204 tuning slug for a maximum peak in drive plate current.

(15). Set the DRIVER BAND switch to 16-32 position.

(16). Adjust L207 and L204 tuning slugs for a maximum peak in driver plate current.

(17). Set METER switch in PA GR position.

(18). Adjust L214 tuning for maximum peak in P.A. grid current.

(19). Set the DRIVER TUNING control to the 4.0 position.

(20). a. If a P.A. grid current indication is evident on the meter, adjust the C218 and C210 for a maximum peak and adjust the DRIVER TUNING control for peak indication, and each time retune C218 and C210 for maximum.

(20). b. If P.A. grid current indication cannot be obtained, set METER switch to DR PL position and adjust C218 and C210 for maximum

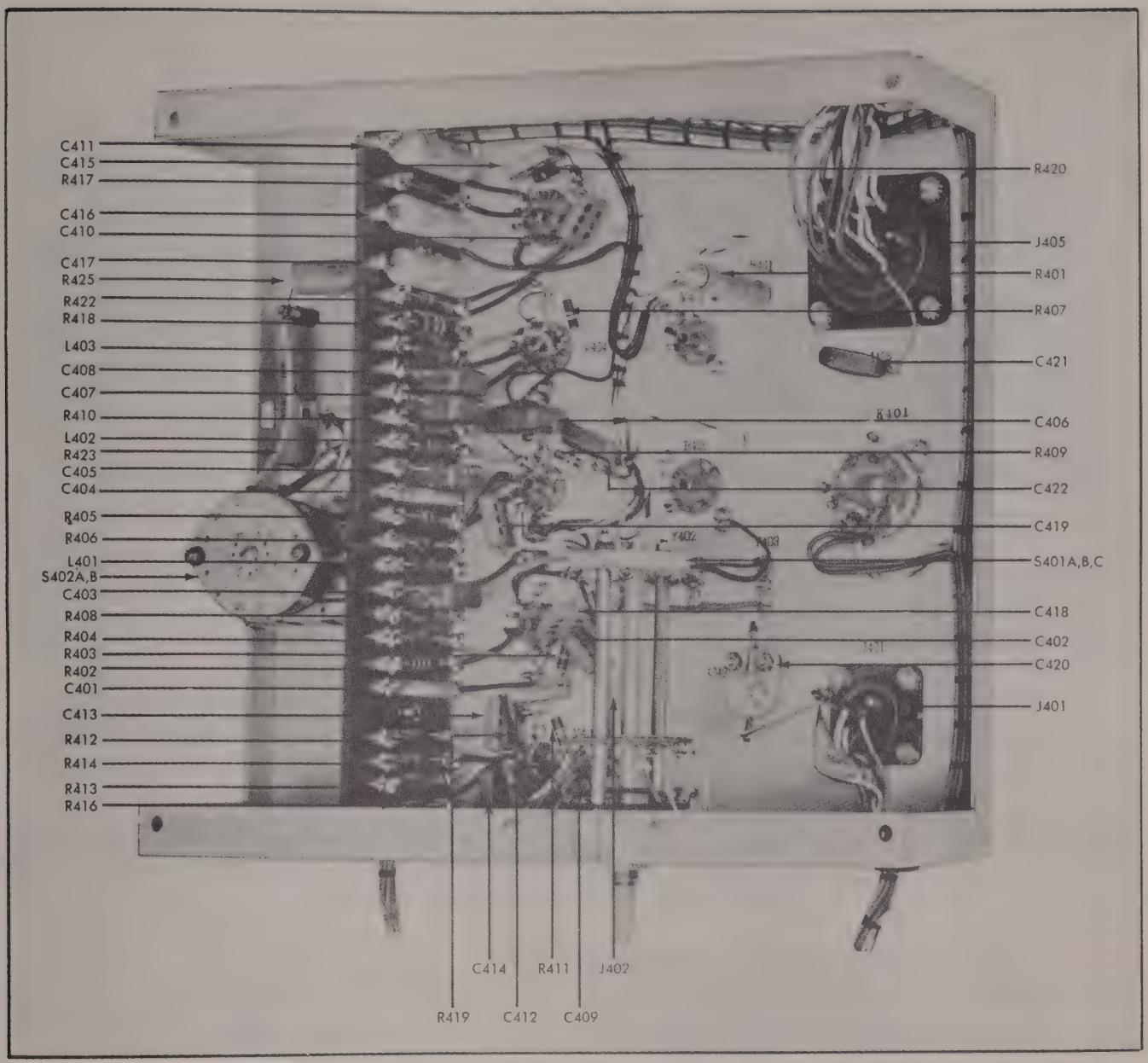


Figure 4-12. Bottom View, Interconnect Sub-chassis

indication on the meter. Return the METER switch to the PA GR position and repeat step 20a above.

(21). Set the DRIVER TUNING to the 2.0 position and providing an adequate P.A. grid current is obtainable, adjust the PA TUNING for maximum indication on the meter. If no P.A. grid current is being drawn, repeat steps 13 through 21, inclusive.

(22). Set the DRIVER BAND switch to the 8-16 position.

(23). Adjust L207 tuning slug for maximum indication of driver plate current.

(24). Set the METER switch to the PA GR position.

(25). Adjust L213 tuning slug for maximum indication of P.A. grid current.

(26). Set the DRIVER BAND switch to the 16-32 position.

(27). Adjust L212 tuning slug for maximum indication of P.A. grid current.

(28). Set the MO to 2 Mc and calibrate (see Paragraph 4. C. of this section).

(29). Set the DRIVER BAND switch to the 2-4 position.

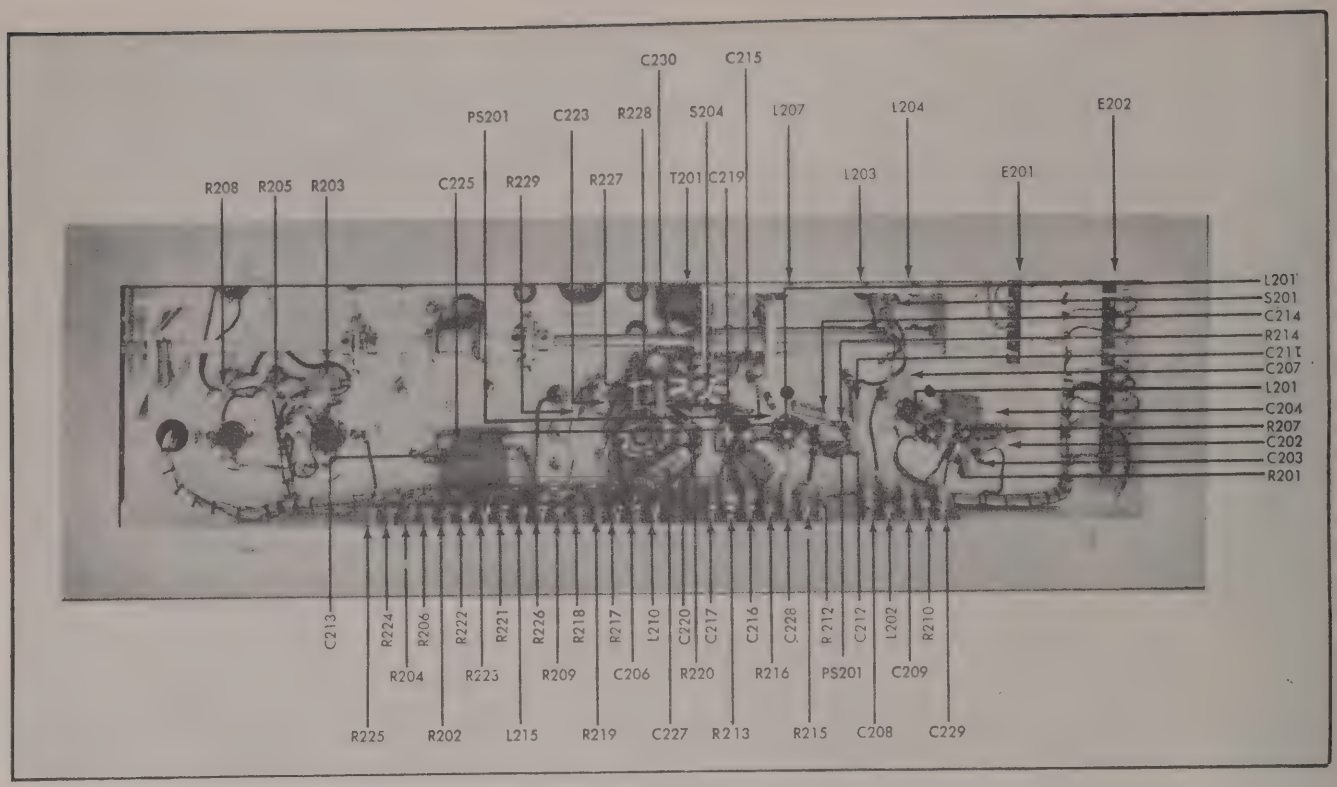


Figure 4-13. Bottom View, Multiplier Sub-chassis

(30). Set the METER switch to the DR P1 position.

(31). Adjust L203 tuning slug for maximum driver plate current indication.

(32). Set METER switch to the PA GR position.

(33). Adjust L211 tuning slug for maximum indication of P.A. grid current.

(34). Set the METER switch to the PA GR position.

(35). Adjust the DRIVER TUNING control in the vicinity of 2.0 for P.A. grid current indication.

(36). Set the DRIVER BAND switch to the 4-8 position.

(37). Repeat step 35.

(38). Set the DRIVER BAND switch to the 8-16 position.

(39). Repeat step 35.

(40). Set the DRIVER BAND switch to the 16-32 position.

(41). Repeat step 35.

(42). Set the MO frequency to 4 Mc.

(43). Repeat step 29.

(44). Adjust the DRIVER TUNING control in the vicinity of 4.0 for P.A. grid current indication.

(45). Repeat step 36.

(46). Repeat step 44.

(47). Repeat step 38.

(48). Repeat step 44.

(49). Repeat step 40.

(50). Repeat step 44.

If P.A. grid current was obtained in step 35, 37, 39, 41, 44, 46, 48 and 50 then lock all coils and the alignment of the multipliers and drivers is completed.

5. NEUTRALIZATION

During the process of testing and alignment of the transmitter, neutralization was performed. Unless some major component or adjustment in the final stages has been changed, re-neutralization will not be necessary. If, however, some

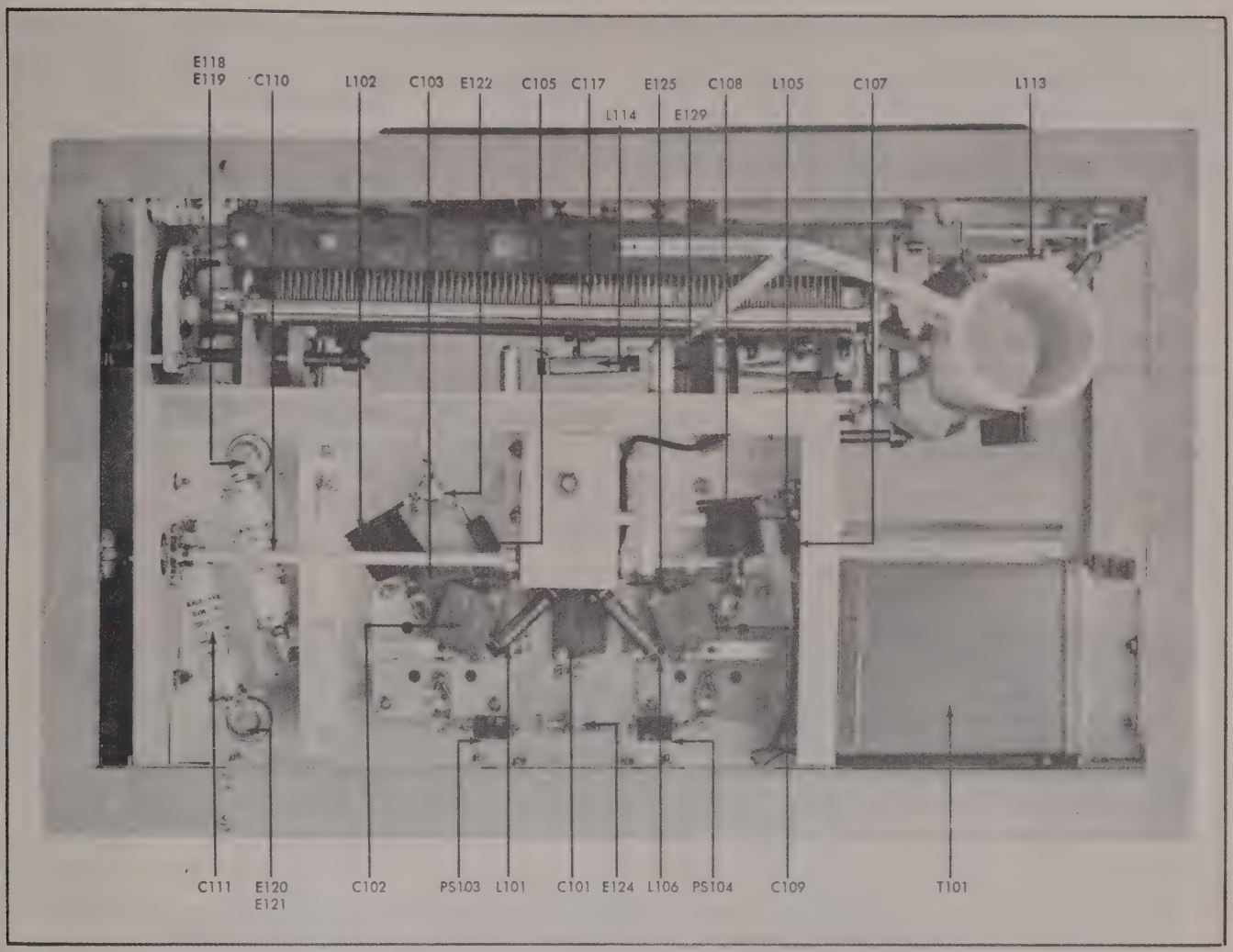


Figure 4-14. Bottom View, P.A. Sub-chassis

major change is made, the transmitter should be re-neutralized as follows:

1. Disconnect the load or antenna.

2. Pull out the RTF deck to the point where it will open no further, and remove the Multiplier cover.

WARNING

FOR THIS OPERATION, HIGH VOLTAGE POWER IS NOT NECESSARY AND MAY BE DANGEROUS. THEREFORE, KEEP THE FINAL PLATE SWITCH IN THE "OFF" POSITION. AS AN ADDITIONAL PRECAUTION, DISCONNECT P506 (THE HIGH VOLTAGE PLUG) AT THE POINT WHERE IT ENTERS THE METER BOX AT THE REAR OF THE MODEL RTF FRONT PANEL. CARE MUST STILL BE EXERCISED --- VOLTAGE STILL APPEARS ON THE DRIVER PLATES AND ITS TUNED CIRCUITS.

3. Loosen the locking nut at the neutralizing capacitor, C104.

4. Turn the MAIN POWER Breaker to the ON position.

5. Depress the interlock switch, S503, by some mechanical means, and throw the TRANSMITTER PLATES switch to the ON position.

6. Tune the multiplier to a frequency in the vicinity of 8 Mc and adjust the DRIVE control, R211, to approximately 20 Ma of P.A. grid current.

7. Adjust the P.A. plate tank to resonance at the same frequency as in step 6. If a dip in the grid current occurs, adjust the neutralizing capacitor, C104, with an aligning tool or insulated screw driver. Make small adjustment, checking often, until tuning the P.A. plate tank to resonance will not cause a dip in P.A. grid current.

8. Repeat stages 6 and 7 on a frequency near 30 Mc. If no dips occur at these two frequencies, the transmitter is now neutralized.

9. Turn the power off, tighten the neutralizing condensor and replace covers and P506.

The approach outlined above is one suggested for the field where limited equipment is available and where it is important to neutralize quickly and easily. Where a more sensitive indicating system can be obtained, the one shown in Figure 4-6 is recommended:

Proceed as follows:

(a). Tune the multiplier in the vicinity of 8 Mc and adjust the DRIVE control for about 20 Ma of P.A. grid current.

WARNING

NO P.A. PLATE VOLTAGE SHALL BE ON AT ANY TIME DURING THESE ADJUSTMENTS.

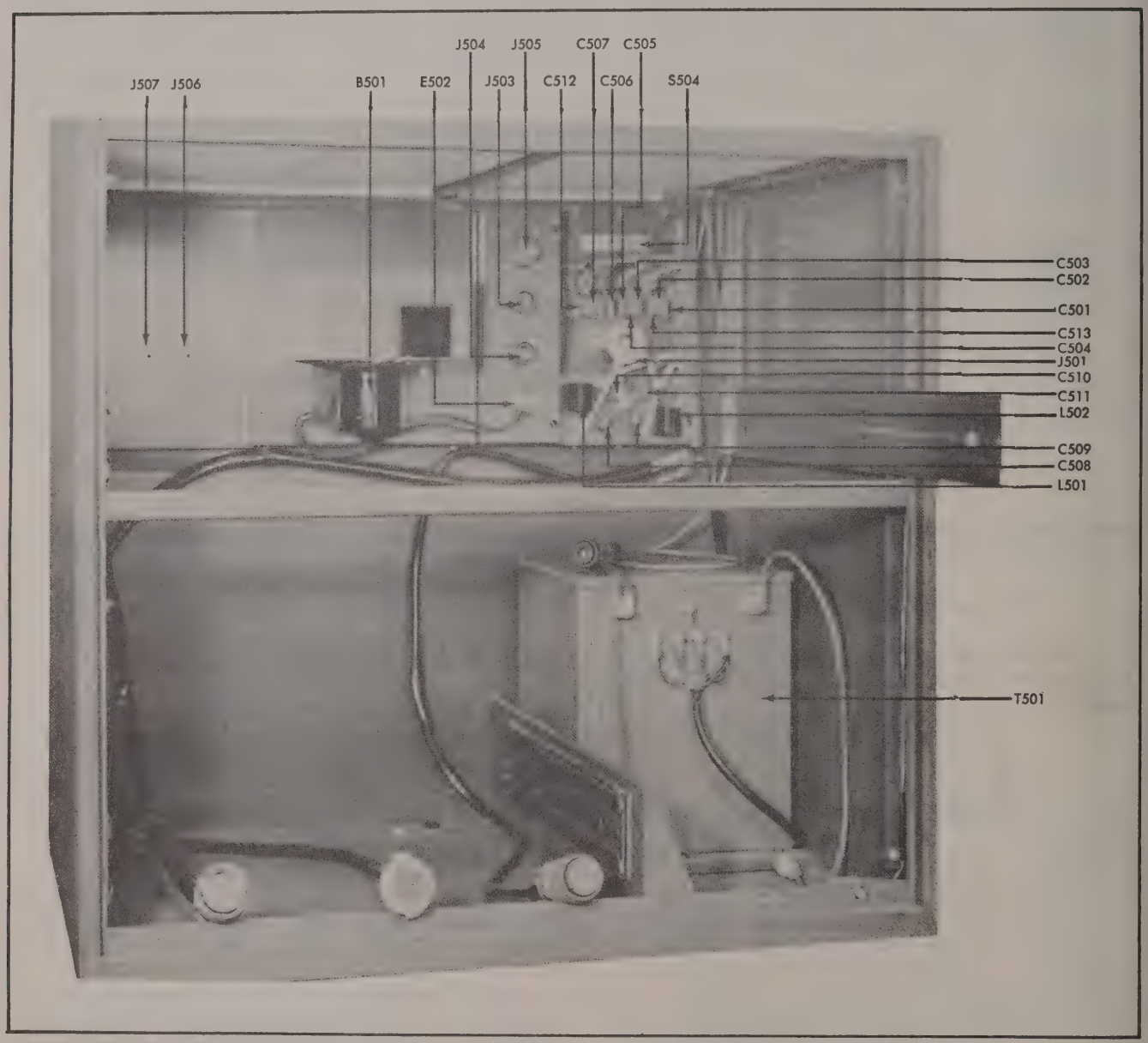


Figure 4-15. Inside View, Cabinet/Frame Showing Electrical Components

(b). Link couple the three turn loop to the final tank coil and resonate the final tank at the driver output frequency of about 8 Mc. The resonant point is indicated by a peak in the micro-ammeter reading.

(c). Rotate the neutralizing capacitor until a minimum reading is obtained on the micro-ammeter. Keep in mind that the final tank must be reresonated each time the neutralizing capacitor is rotated.

(d). Repeat these steps at about 30 Mc. The best neutralizing capacitor position will be a compromise between the position of lowest meter reading at 8 Mc and at 30 Mc.

6. CORRECTIVE MAINTENANCE

A. GENERAL

It is always best to regard a transmitter such as the Model GPT-750 as a series of inter-related blocks. This means, of course, that a disappearance of output in the last stage may be charged to a failure in anyone of the stages which precede the final amplifier, the example stated should serve to show the technician that he must start at the source rather than concentrate his time and effort in the stage at which the fault initially seems to appear.

In general, it is suggested that the outline shown below be followed:

(1). All of the components in the Model GPT-750 have been very conservatively rated, and therefore, in the vast majority of cases, difficulty will arise from an easily replaceable tube or fuse. IF THE TUBES AND FUSES ARE ALWAYS CHECKED FIRST, IT WILL FREQUENTLY NOT BE NECESSARY TO INVESTIGATE FURTHER.

NOTE: The Time Delay Relay, K-603, must be considered as a tube since it's heater element and moving parts are contained in a glass envelope.

If trouble arises in a chain of stages, check all the tubes in that particular line. If a tube tester is not available, a spare tube may be inserted for the purpose of localizing the fault. If the insertion of a new tube accomplishes nothing, the original tube should once again be inserted in the socket.

If the tubes are not at fault, the troublesome unit (drawer) must be "isolated", and if necessary, removed from the cabinet frame in order to effect the repair. To localize the fault further, the additional procedure outlined below should be followed. In addition, reference to the voltage and resistance charts (Tables 5-1 and 5-2) should be made.

TROUBLE SHOOTING CHART

	FOLLOW STEPS:							
FAILURE OF	1	2	3	4	5	6	7	8
PRIMARY AC POWER	X							
TRANSMITTER PLATES indicator light		X						
FINAL PLATES indicator light								X
RF OUTPUT		X	X	X	X	X	X	
ZERO SIGNAL PA PLATE CURRENT							X	
MODULATION							X	
PA OVERLOAD (CONSTANTLY TRIPS)							X	X

chart continued on following page

STEP

1. Check for the presence of AC power at J501 and at circuit breaker CB601. If the latter is in the "ON" position, and AC is present, the indicator light marked "MAIN POWER" should light and the meter marked "FILAMENT LINE" should read.

2. Check all front panel locks (thumbscrews) for tightness. If trouble still persists, refer to paragraph 5B (3). (interlock circuits)

3. Place the MODE switch in the "TUNE" position and tune the multiplier to an arbitrary frequency between 2-4 Mcs. as described in paragraph III. 2 (operation). If P.A. grid current cannot be obtained, rotate the Meter Switch to the "DRIVER PLATE" position and try to tune again. If plate current is now available, then the fault lies in the Driver Tank circuits or P.A. tubes.

4. Place the Oscillator Switch in the "CAL" position. If a beat is obtainable, this signifies that the master oscillator and low positive voltage power supply are functioning properly. If no beat occurs, refer to paragraph IV. B. 2.

5. Pull the RTF Drawer out until the stops prevent further motion. Place the Oscillator Switch in the "MO" position, the Mode Switch in the "TUNE" position, and the Transmitter Plates Switch on "OPERATE".

WARNING

KEEP FINAL PLATE SWITCH OFF.

Depress the interlock and measure with a VTVM the following voltages at E202 located on the multiplier chassis.

PIN	1	2	3	4	5	6	7	8	9	10	11	12
APPROX. VOLT. D.C.	500*	500*	0	-210	-105	0	27	270	-	-	-	270

NOTE: All Above Readings Taken Relative To Chassis Ground.
* 750 V with S204 in SSB.

If these readings deviate by more than 20% the RTP supply voltages should be checked.

6. Check with an RF VTVM the RF voltage at J201. The voltage should be approximately 2 volts rms. If the voltage is not present, the fault lies in the Interconnect Chassis of the RTF. If the voltage is present, the fault must be charged to the Multiplier. See paragraph IV.B.5. (Multipliers)

7. With the Mode Switch in the "CW-FS" position, the Drive Control in the full CCW position, the Transmitter Plates Switch in the "OPERATE" position, and the Final Plate Switch in the "ON" position, check for P.A. plate current. The correct reading should be about 110 MA. If no current is available, check the H. V. cabling for continuity, including the P.A. chokes, e.i., continuity from PA plates to the HV fitter capacitors. If no trouble is found here, see paragraph IV.B.7. (HV P.S.)

8. Check the bias at the grids of the PA tubes. Remove the H.V. cable plug, P506, and disconnect lug marked #1 at E201. If the overload still continues to trip, the fault lies in the RTP. If the overload stops tripping, the trouble lies in the RTF. Check capacitor cables, chokes, or other possible visual defects.

B. PARTICULAR FAULTS

(1). Poor Oscillator Stability-

If the Master Oscillator shows signs of rapidly changing frequency after having been given an adequate warm-up period, the inner oven thermostat is very likely at fault. It's possible that the contacts of the thermostat will stick. If this occurs, the temperature will rise until the safety thermostat takes over. In normal operation, after at least four or five hours warm-up, the operator will see the OUTER OVEN indicator blink on for roughly five seconds and off for roughly thirty seconds. The INNER OVEN indicator will blink on for approximately three to five minutes, and off for approximately eight to twelve minutes. All of these figures are, of course, highly dependent upon the ambient temperature conditions. If the INNER OVEN Thermostat (S301) sticks, the INNER OVEN indicator will cycle very erratically. A faulty unit such as this must be replaced. (See Figure 4-7)

As mentioned previously, all oven enclosed components are conservatively rated. Therefore, it is very likely that faults other than those mentioned above lie in the power cable connector, P302. Continuity and resistance checks are advisable. If the trouble still persists, then the opening of the oven will become essential.

(2). No Beat-

If more than a volt of R.F. appears at pin 7 of V405, or more than 6 volts of R.F. appears at pin 1 of this same tube, check the mixer and audio amplifier sections. First, however, be certain that I303 is not at fault. It will be apparent that such is the case if a beat can be obtained with a pair of headphones without a simultaneous indication from I303.

(3). Interlock Circuits-

When troubleshooting this circuit, special systematic care must be taken, since the circuit loop extends throughout the transmitter. The fault may lie in the RTP, CAB/FRAME, or in the RTF unit. In isolating the trouble, each of the three units must be considered separately. It is suggested, however, that the relay, K603, be checked first. Reference to Figure 5-1 will facilitate a better understanding of this circuitry.

(4). RF Stages Of Interconnect Chassis-

As stated previously, if the R.F. signal is present at J405 and no output is obtainable at P401, the fault must be in one of the three stages, V402, V403, or V404. Reference to the Voltage Charts should be made.

(5). Multipliers-

Make visual checks as well as continuity checks of the RF tank components. Take voltage checks, referring to the voltage charts. If a component such as the multiplier coil must be replaced, realignment of the multiplier will be necessary.

(6). Keying Circuits-

When the transmitter has been properly set on frequency in the "TUNE" position, but no output can be obtained in the "CW-FS" position by depressing the key at J302, check the voltages at V202 as stated in the voltage chart. If excessive Key clicks are heard, check C206 and R209.

(7). H. V. Power Supply -

WARNING

WHEN MAKING MEASUREMENTS OF HIGH VOLTAGE CIRCUITS, DO NOT HANDLE INSTRUMENTS OR THEIR LEADS WHILE POWER IS ON, e.i., PLACE LEADS ON COMPONENT TO BE MEASURED WITH THE POWER TURNED OFF, THEN TURN THE POWER ON AND TAKE READING. TO REMOVE LEADS, TURN POWER OFF AGAIN.

WHEN CHECKING HIGH VOLTAGE COMPONENTS FOR "SHORT", IT IS OFTEN FOUND THAT THESE "SHORTS" DISAPPEAR WHEN NO HIGH VOLTAGE IS PRESENT. THEREFORE, IT IS NOT ALWAYS POSSIBLE TO ISOLATE TROUBLES WITH AN OHMMETER. IT IS SUGGESTED THAT A VISUAL INSPECTION BE MADE FIRST FOR POSSIBLE ARCS, THEN THE SUSPECTED COMPONENTS BE REMOVED FROM THE CIRCUIT, CHECKED, AND INSERTED BACK ONE BY ONE, MAKING HIGH VOLTAGE TESTS.

(8). Mid And Low Voltage Supply-

If repairs in the Mid or Low Voltage Supply become necessary, check the filter capacitor first.

C. MECHANICAL ALIGNMENT OF VACUUM CAPACITOR

(1). If Vacuum Capacitor has been installed,

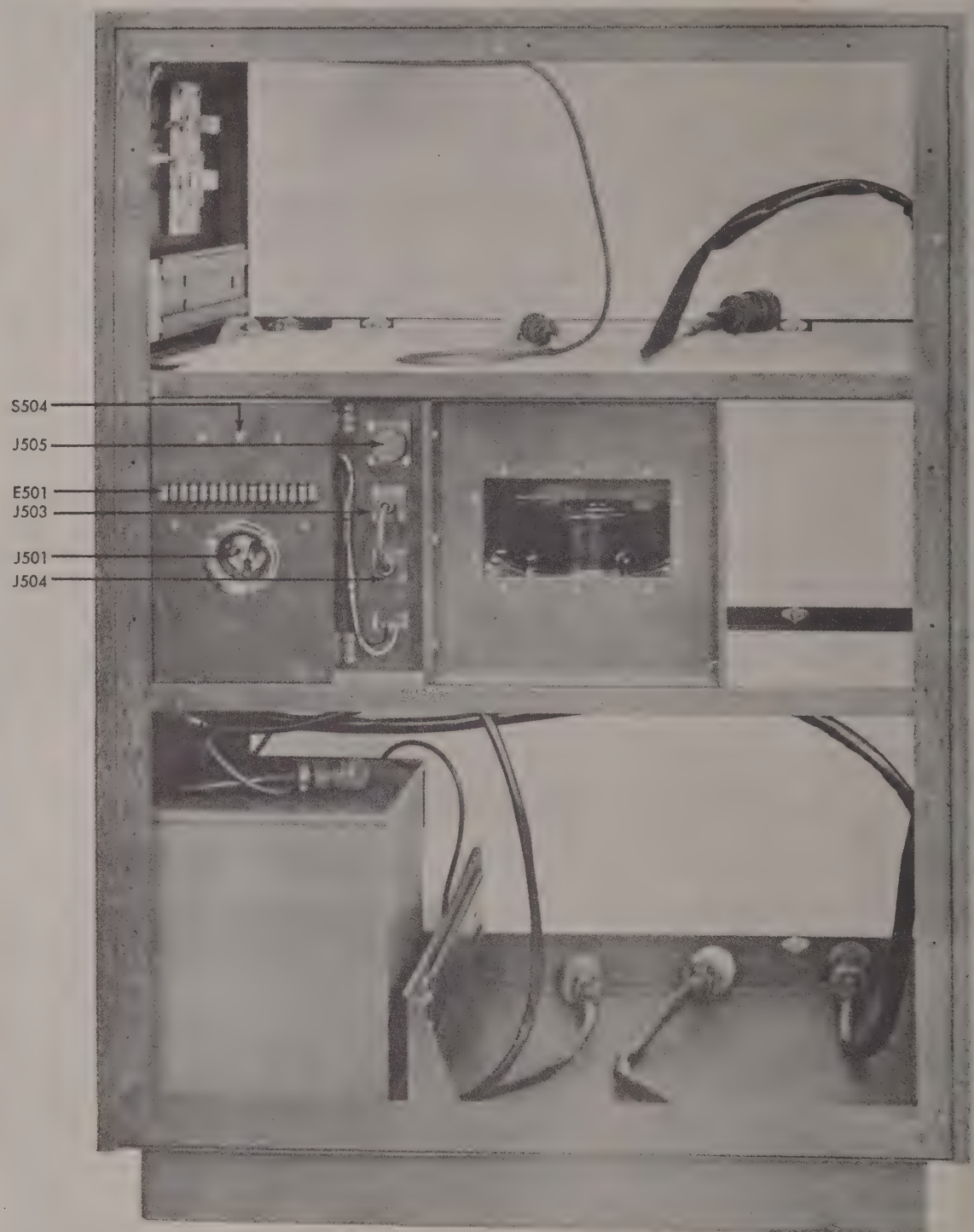


Figure 4-16. Rear View, Cabinet/Frame, Cover Off

loosen Hex head screw on top of chassis and remove capacitor from socket.

(2). Turn counter clockwise until mechanical stop nears housing.

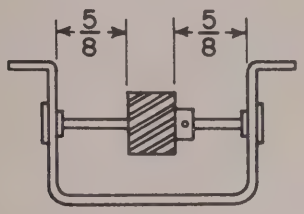
(3). Loosen the coupling between main shaft and counter.

(4). Set counter to read 99.6 and tighten the coupling.

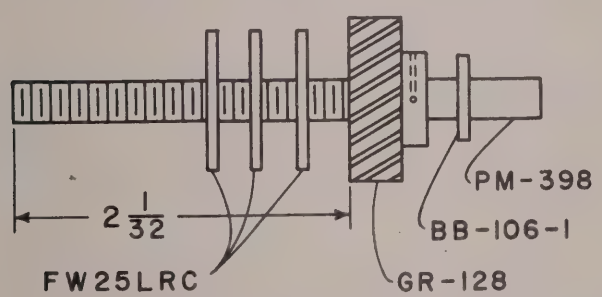
(5). Turn Counter counter clockwise until reading on Counter is 22.3. Then tighten the two 1/4-28 hex nuts flush with stop.

(6). Revolve Counter in each direction a few times to be sure the Counter range is between 22.3 and 99.6. If not, readjust stops to meet this requirement.

(7). Set metal gear GR-124, 5/8 of an inch from inside wall of gear housing.



(8). Remove original shaft from vacuum capacitor and replace with the new shaft PM-398, the nylon gear GR-128, three flat washers FW25LRC, and one thrust bearing BB-106-1 according to the following method of assembly.



Rotate the shaft gear clockwise until the rotor of the capacitor begins to move and a snug feeling occurs while rotating the gear. Then add one quarter additional turn.

(9). Lubricate panel bearing on top of gear housing and threaded position of stop section on Counter extension shaft with "Molycote"

(10). Set Counter at 99.6.

(11). Insert vacuum capacitor in its socket until end of shaft is flush with outside end of panel bearing on top of gear housing.

(12). Tighten hex head screw at base of socket securely.

(13). Be sure all set screws are tight and that the assembly runs freely between 22.3 and 99.6. NOTE: This range must be adhered to.

D. PA Screen Grid Protective Relay (K601)

(1). R603 and R604 are time delay controlling resistances for the screen grid relay K601. R603 is factory adjusted and must not be reset unless the relay K601 is replaced. Any readjustment to the time delay period should be made to R604. This is done as follows:

(a). Load the transmitter as described in Section II, PHONE Operation for MCW and adjust the DRIVE control slightly until the P.A. screen grid current reads 100 Ma. Adjust R604 to the point where a slight additional rise in screen grid current will cause the relay to trip.

(2). Should it become necessary to replace the relay, K601, then R603 and R604 should be set as follows:

(a). Load the transmitter as in step 1.a, above and adjust the DRIVE control until the P.A. screen grid current reads 100Ma. Set R604 in its mid position and adjust R603 to the point where a slight rise in screen grid current will trip the relay. Lock R603 after adjustment. If further adjustments becomes necessary, repeat step 1.a. above.

E. PA Plate Protective Relay (K604)

(1). Load the transmitter as described in Section II, PHONE OPERATION for MCW and adjust the P.A. plate current and modulator current to 400 Ma.

WARNING

DO NOT OPERATE THE TRANSMITTER IN THIS CONDITION FOR A LONGER TIME THAN IT TAKES TO MAKE THE ADJUSTMENT DUE TO EXCESSIVE PLATE DISSIPATION OF THE MODULATOR TUBES DURING THIS ADJUSTMENT.

(2). Adjust R605 slightly to the point where a slight rise in P.A. plate current will cause the relay to trip.

SECTION V
DATA

TABLE 5-1. VOLTAGE CHARTS

	PIN 1		PIN 2		PIN 3		PIN 4		PIN 5		PIN 6		PIN 7		PIN 8		PIN 9		PLATE CAP		REMARKS
	K.U.	K.D.	K.U.	K.D.	K.U.	K.D.	K.U.	K.D.	K.U.	K.D.	K.U.	K.D.	K.U.	K.D.	K.U.	K.D.	K.U.	K.D.			
V101	GND	GND	500	500	-105	-105	500	500	5 AC	5 AC	-	-	-	-	-	-	-	-	2900	-	#
102	5 AC	5 AC	500	500	-105	-105	500	500	GND	GND	-	-	-	-	-	-	-	-	2900	-	#
201	-75	0	GND	GND	6.3 AC	6.3 AC	GND	GND	270	270	145	145	0	1.3	-	-	-	-	-	-	
2	90	400	22	0	22	13	GND	GND	GND	GND	150	150	-75	0	2	-70	6.3 AC	6.3 AC	-	-	
3	150	150	NC	NC	NC	NC	NC	NC	150	150	NC	NC	GND	GND	-	-	-	-	-	-	
4	-20	-20	.25	7.2	0	0	GND	GND	260	260	145	145	NC	NC	-	-	-	-			
5	GND	GND	GND	GND	145	145	GND	GND	-90	-40	GND	GND	6.3 AC	6.3 AC	GND	GND	-	-	500	500	
6	-75	0	-75	0	GND	GND	GND	GND	GND	GND	-75	0	-75	0	-	-	-	-	-	-	
301	120	120	NC	NC	6.3 AC	6.3 AC	GND	GND	120	120	-3.3	-3.3	.13	.13	-	-	-	-	-	-	Oscillator Switch in CAL Position
2	150	150	0	0	5.2	5.2	6.3 AC	6.3 AC	6.3 AC	6.3 AC	75	75	-12	-12	7	7	GND	GND	-	-	Oscillator Switch in CAL Position
401	150	150	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	GND	-	-	-	-	-	-	-	
2	132	135	NC	NC	6.3 AC	6.3 AC	GND	GND	NC	NC	0	0	3.9	4.0	-	-	-	-	-	-	
3	-75	0	GND	GND	6.3 AC	6.3 AC	GND	GND	270	255	270	150	0	2.2	-	-	-	-	-	-	
4	270	270	0	0	12.2	12.5	6.3 AC	6.3 AC	6.3 AC	6.3 AC	270	270	0	0	12.5	12.5	GND	GND	-	-	
5	-12.2	-12.2	0	0	6.3 AC	6.3 AC	GND	GND	30	30	40	40	-.2	-.2	-	-	-	-	-	-	Oscillator Switch in CAL Position
6	55	55	-30	-30	GND	GND	6.3 AC	6.3 AC	6.3 AC	6.3 AC	75	75	-7	-7	GND	GND	GND	GND	-	-	Oscillator Switch in CAL Position
601	-105	-105	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	-210	-120	-	-	-	-	-	-	
2	GND	GND	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	-105	-105	-	-	-	-	-	-	
3	-435	-435	NC	NC	470 AC	470 AC	470 AC	470 AC	NC	NC	-435	-435	470 AC	470 AC	-	-	-	-	-	-	
4	NC	NC	285	285	NC	NC	470 AC	470 AC	NC	NC	470 AC	470 AC	NC	NC	285	285	-	-	-	-	

5	NC	NC	535	535	NC	NC	800 AC	800 AC	NC	NC	800 AC	800 AC	NC	NC	535	535	-	-	-	-	
6	-	-	2850	-	-	-	2850	-	-	-	-	-	-	-	-	-	-	-	-	3300 AC	#
7	-	-	2850	-	-	-	2850	-	-	-	-	-	-	-	-	-	-	-	-	3300 AC	
701	-1.5	-1.5	-270	-270	-267	-267	-270	-270	-270	-270	-1.5	-1.5	-235	-235	-267	-267	-270	-270	-	-	
2	NC	NC	-270	-270	2.1	2.1	0	0	-270	-270	NC	NC	-270	-270	-240	-240	-	-	-	-	**
3	NC	NC	-270	-270	2.1	2.1	0	0	-270	-270	NC	NC	-270	-270	-255	-255	-	-	-	-	
grid cap																					
4	-75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2800	2800	#
5	-75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2800	2800	
6	NC	NC	-75	-75	NC	NC	NC	NC	GND	GND	NC	NC	NC	NC	NC	NC	-	-	-	-	
7	NC	NC	0	0	NC	NC	470 AC	470 AC	NC	NC	470 AC	470 AC	NC	NC	0	0	-	-	-	-	

K.U. - Key Up K.D. - Key Down N C - No Connection - - Not Applicable

CONDITIONS:

1. Line Voltage 115 V, 60 cycle.
2. TRANSMITTER PLATES switch to OPERATE.
3. FINAL PLATE switch OFF.
4. MODE switch to CW-FS.
5. OSCILLATOR switch to X-1 (no crystal).
6. DRIVE switch to NORMAL.
7. SSB switch to NORMAL.
8. DRIVE control full clockwise.
9. # Conditions as in steps 1 to 10 with FINAL PLATE switch ON.
10. ** Conditions as in steps 1 to 10, with MODE switch to PHONE.
11. Readings taken with a Hewlit Packard Model 410B meter.

NOTE: Investigate any voltage reading which varies more than 20%.

TERMINAL STRIPS

E601 Terminal	Volts K.U.	E602 Terminal	Volts K.U.	E603 Terminal	Volts K.U.
1	250	9	500	21	0
2	0	10	500	22	210
3	0	11	*115	23	*6.3 to gnd
4	500	12	*115	24	0
5	-	13	*115 #♀	25	270
6	-	14	*115 #♀	26	-105
7	500	15	*115 #♀	27	-210
8	500	16	*115 #♀	28	*6.3 to gnd
		17	270	29	-
		18	270	30	-
		19	0	31	*115 ♀
		20	-90	32	0

* - AC Volts. All AC voltages are measured with respect to terminal number 30 of E603 except as indicated.

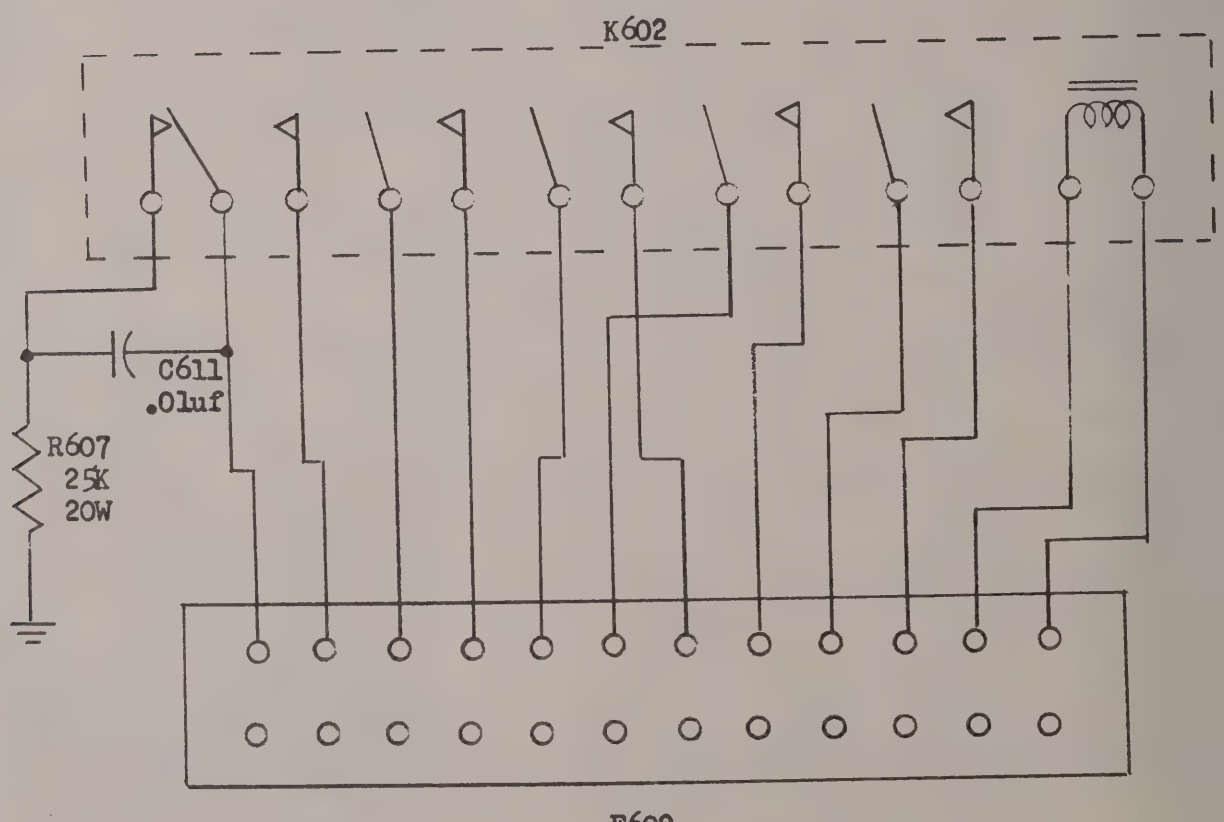
♀ - When 230 volt line is used this voltage is 230 volts.

ADDENDUM TO PARTS LIST

MODEL GPT-750

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
C514	CAPACITOR, fixed: mica; .01 mfd, ±5%; char. C, 300 wvdc.	RF Bypass Cap.	CM35C103J
C515	SAME AS C514	RF Bypass Cap.	CM35C103J
C611	CAPACITOR, fixed: paper tubular .01 mfd, ±5%; 1000 wvdc.	Spark Supp. Cap., K602	CN-110-103-G
R607	RESISTOR, fixed: wire wound; 25,000 ohms, ±10%; 20 watts.	Bleeder Res., K602	RW-100-36

POWER SUPPLY
SCHEMATIC CHANGE AS FOLLOWS:



PARTS LIST

The Model RTF is composed of four electrical sections, assigned symbol groups as follows:

101 through 199	Power Amplifier
201 through 299	Multiplier
301 through 399	Master Oscillator and Front Panel
401 through 499	Interconnect Chassis

POWER AMPLIFIER
SYMBOL GROUP 101 through 199

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
B101	MOTOR, AC: 2 pole; 3000 rpm; 1/70 hp; 115 VAC, 50/60 cps, 40 watts; counter-clockwise rotation; 1/4 in. dia. shaft, 1-3/8 in. lg., flatted 3/64 in. x 1 in. lg.; mtg. dim. two 13/64 in. dia. holes on 2-7/8 in. mtg. centers and one 1-1/2 in. dia. hole.	Blower Motor	MO-107-CCW
C101	CAPACITOR, fixed: mica; 1000 mmfd., ±10%, 2500 wvdc; char. B.	Screen Decoupling Cap., V101	CM45B102K
C102	CAPACITOR, fixed: mica; 1000 mmfd., ±10%, 2500 wvdc; char. B.	Screen Decoupling Cap., V101	CM45B102K
C103	CAPACITOR, fixed: mica; 150 mmfd., ±10%, 2500 wvdc; char. B.	Cathode Bypass Cap., V101	CM45B151K
C104	CAPACITOR, variable: teflon dielectric; 2-4.2 mmfd., consisting of: PLATE, neutralizer: aluminum. ROTOR DISC, neutralizer: aluminum. MOUNTING PLATE, neutralizer: teflon. PLATE, dielectric: teflon.	Neutralizing Cap., V101, 102	 MS-780 MS-779 PX-324 PX-325
C105	CAPACITOR, fixed: mica; 10,000 mmfd., ±5%, 300 wvdc; char. C.	P/O LP Filter, V101	CM35C103J
C106	Not Used.		
C107	CAPACITOR, fixed: mica; 10,000 mmfd., ±5%, 300 wvdc; char. C.	P/O LP Filter, V101	CM35C103J
C108	CAPACITOR, fixed: mica; 150 mmfd., ±10%, 2500 wvdc; char. C.	Cathode Bypass Cap., V102	CM45B151K
C109	CAPACITOR, fixed: mica; 1000 mmfd., ±10%, 2500 wvdc; char. B.	Screen Bypass Cap., V102	CM45B102K
C110	CAPACITOR, fixed: trylar; 1000 mmfd., ±10%, 8000 wvdc.	RF Bypass Cap., S101	CX102K102P
C111	CAPACITOR, fixed: trylar; 1000 mmfd., ±10%, 8000 wvdc.	RF Decoupling Cap., S101	CX102K102P
C112	CAPACITOR, fixed: trylar; 500 mmfd., ±10%, 8000 wvdc.	PA Plate Coupling Cap., S101	CX102K501P
C113	CAPACITOR, variable: vacuum; 10-400 mmfd., 7.5 KV; 42 amp; CW rotation decr. capacitance.	PA Tuning Cap., S101	CB-126-3

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
C114	CAPACITOR, fixed: trylar; 500 mmfd., ±10%, 8000 wvdc.	RF Bypass Cap., S101	CX102K501P
C115	CAPACITOR, fixed: mica; 500 mmfd., ±5%, 500 wvdc; char. B.	P/O LP Filter, TC101	CM20B501J
C116	CAPACITOR, fixed: mica; 500 mmfd., ±5%, 500 wvdc; char. B.	P/O LP Filter, TC101	CM20B501J
C117	CAPACITOR, variable: air; dual sect; 70-1000 mmfd. ea. sect., used in parallel.	Ant. Loading Cap., TC101	CB125B1000X
C118	CAPACITOR, fixed: trylar; 2000 mmfd., ±5%, 4000 wvdc.	Ant. Loading Cap., S102-B	CX102J202M
E101	CONTACT ASSEMBLY: button type; brass, silver plated; 10-32 x 1 in. mtg. screw.	RF Output Terminal	A-1094-2
E102	CONTACT ASSEMBLY: button type; brass, silver plated; 10-32 x 9/16 in. mtg. screw.	Ground Terminal	A-1094-1
E103	INSULATOR, pillar: round; white glazed steatite; 3/4 in. lg. x 1/2 in. diam. tapped 8-32 x 1/4 in. deep each end.	Stand-off Insulator, L113	NS3W0206
E104	INSULATOR, pillar: round; white glazed steatite; 3/4 in. lg. x 1/2 in. diam. tapped 8-32 x 1/4 in. deep each end.	Stand-off Insulator, L113	NS3W0206
E105	INSULATOR, pillar: round; white glazed steatite; 3/4 in. lg. x 1/2 in. diam. tapped 8-32 x 1/4 in. deep each end.	Stand-off Insulator, L113	NS3W0206
E106	INSULATOR, pillar: round; white glazed steatite; 3/4 in. lg. x 1/2 in. diam. tapped 8-32 x 1/4 in. deep each end.	Stand-off Insulator, L113	NS3W0206
E107	CONNECTOR, electron tube: heat dissipating; 7/8 in. lg. x 3/4 in. od.; one 6-32 binder head machine screw and one 6-32 set screw.	Plate Connector V101	HB-106-6
E108	CONNECTOR, electron tube: heat dissipating; 7/8 in. lg. x 3/4 in. od. ; one 6-32 binder head machine screw and one 6-32 set screw.	Plate Connector V102	HB-106-6
E109	INSULATOR, pillar: round; white glazed steatite; 5 in. lg. x 1 in. diam. tapped 1/4-20 x 5/8 in. deep each end.	Stand-off Insulator, C104	NS3W0440
E110	INSULATOR, pillar: round; white glazed steatite; 1 in. lg. x 3/4 in. diam. tapped 10-32 x 3/8 in. deep each end.	Stand-off Insulator, C114	NS3W0308
E111	INSULATOR, feed thru: male; white glazed steatite; 7/8 in. lg. o/a x 7/8 in. diam. flange; 1/2 in. diam. x 3/8 in. lg. insert; 3/16 in. screw hole.	Feed-thru Insulator, L109	NS-112-1

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
E112	GASKET, cushion: cork; 15/16 in. O.D. x 1/2 in. I.D. x 1/16 in. thk.	Cushion Gasket, E111	GA-118
E113	INSULATOR, feed-thru: male; white glazed steatite; 7/8 in. lg. o/a x 7/8 in. diam. flange; 1/2 in. diam. x 3/8 in. lg. insert; 3/16 in. screw hole.	Feed-thru Insulator, L109	NS-112-1
E114	GASKET, cushion: cork; 15/16 in. O.D. x 1/2 in. I.D. x 1/16 in. thk.	Cushion Gasket, E113	GA-118
E115	INSULATOR, pillar: round white glazed steatite; 1-1/2 in. lg. x 1/2 in. diam. tapped 8-32 x 3/8 in. deep each end.	Stand-off Insulator, L112	NS3W0212
E116	INSULATOR, pillar: round; white glazed steatite; 1-1/2 in. lg. x 1/2 in. diam. tapped 8-32 x 3/8 in. deep each end.	Stand-off Insulator, L112	NS3W0212
E117	INSULATOR, pillar: round; white glazed steatite; 1-1/2 in. lg. x 1/2 in. diam. tapped 8-32 x 3/8 in. deep each end.	Stand-off Insulator, L112	NS3W0212
E118	INSULATOR, feed-thru: female; white glazed steatite; 1/2 in. lg. o/a x 7/8 in. diam. flange; 1/2 in diam x 3/8 in deep insert, 3/16 in. screw hole.	Feed-thru Insulator, L109	NS-112-2
E119	GASKET, cushion: cork; 15/16 in. O.D. x 1/2 in. I.D. x 1/16 in. thk.	Cushion Gasket, E118	GA-118
E120	INSULATOR, feed-thru: female; white glazed steatite; 1/2 in. lg. o/a x 7/8 in. diam. flange; 1/2 in. diam. x 3/8 in. deep insert; 3/16 in. screw hole.	Feed-thru Insulator, L109	NS-112-2
E121	GASKET, cushion: cork; 15/16 in. O.D. x 1/2 in. I.D. x 1/16 in. thk.	Cushion Gasket, E120	GA-118
E122	INSULATOR, pillar: round; white glazed steatite; 3/4 in. lg. x 1/2 in. diam. tapped 8-32 x 1/4 in. deep each end.	Stand-off Insulator, L105	NS3W0206
E123	INSULATOR, pillar: round; white glazed steatite; 3/4 in. lg. x 1/2 in. diam. tapped 8-32 x 1/4 in. deep each end.	Stand-off Insulator, L106	NS3W0206
E124	INSULATOR, pillar: round; white glazed steatite; 3/4 in. lg. x 1/2 in. diam. tapped 8-32 x 1/4 in. deep each end.	Stand-off Insulator, PS103, 104	NS3W0206
E125	INSULATOR, pillar: round; white glazed steatite; 3/4 in. lg. x 1/2 in. diam. tapped 8-32 x 1/4 in. deep each end.	Stand-off Insulator, L101	NS3W0206
E126	INSULATOR, pillar: round; white glazed steatite; 3/4 in. lg. x 1/2 in. diam. tapped 8-32 x 1/4 in. deep each end.	Stand-off Insulator, L102	NS3W0206

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
E127	Not Used.		
E128	INSULATOR, pillar: round white glazed steatite; 1 in. lg. x 1 in. diam. tapped 1/4-20 x 7/16 in. deep each end.	Stand-off Insulator L108	NS3W0408
E129	INSULATOR, pillar: round; white glazed steatite; 3/4 in. lg. x 1/2 in. dia., tapped 8-32 x 1/4 in. dp. each end.	Stand-off Insulator L114	NS3W0206
E130	INSULATOR, pillar: round; white glazed steatite; 1-3/4 in. lg. x 1/2 in. dia., tapped 8-32 x 3/8 in. dp. each end.	Dielectric Support C104	NS3W0214
E131	INSULATOR, pillar: round; white glazed steatite; 1-3/4 in. lg. x 1/2 in. dia., tapped 8-32 x 3/8 in. dp. each end.	Dielectric Support C104	NS3W0214
E132	INSULATOR, pillar: round; white glazed steatite; 2-1/2 in. lg. x 1/2 in. dia., tapped 8-32 x 3/8 in. dp. each end.	Stand-off Insulator L107, 108	NS3W0220
J101	CONNECTOR, receptacle: female; taflon insulated; mtg. dim. four 1/8 in. holes on 29/32 in. mtg. centers.	RF Output Test	UG-560/U
L101	COIL, R.F.: fixed; 180 microhenries, ±10 microhenries; Q= 50.	Screen Decoupling Coil, V101	A-1126
L102	COIL, R.F.: fixed: 2 microhenries, ±.1 microhenries; Q= 200.	P/O LP Filter, V101	CL-120-2
L103	Not Used.		
L104	Not Used.		
L105	COIL, R.F.: fixed: 2 microhenries, ±.1 microhenries, Q= 200.	P/O LP Filter, V102	CL-120-2
L106	COIL, R.F.: fixed; 180 microhenries, ±10 microhenries; Q= 50.	Screen Decoupling Coil, V102	A-1126
L107	COIL, R.F.: fixed; 38 microhenries, ±5%; Q= 160.	Plate Load Choke HF Band, S101	A-1163
L108	COIL, R.F.: fixed; 100 microhenries, ±5%; Q= 170.	Plate Load Choke, LF Band, S101	A-1162
L109	COIL, R.F.: fixed; 38 microhenries, ±5% Q= 160.	RF Decoupling Coil, S101	A-1163
L110	COIL, R.F.: fixed; 180 microhenries, ±10 microhenries; Q= 50.	P/O LP Filter, TC101	A-1126
L111	COIL, R.F.: fixed; 180 microhenries, ±10 microhenries; Q= 50.	P/O LP Filter, TC101	A-1126

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
L112	TRANSFORMER, R.F.: 1.22 microhenries; tapped at .8 microhenries; 3/16 in. copper tubing, silver plated.	Tank Coil HF Bands, S102-B	A-1208
L113	TRANSFORMER, R.F.: 31 microhenries; tapped at 1.2, 2.4, 4.2, 9.2, 11, 15.5 and 27 microhenries; 1/4 in. copper strip, cadmium plated, glass bonded mica insulated.	LF Bands, S102-B	A-1209
L114	COIL, R.F.: fixed; 180 microhenries; ±10 microhenries; Q= 50.	Safety Choke, S102-B	A-1126
PS101	SUPPRESSOR ASSEMBLY: parasitic; 124 Mc ±3 Mc; consists of 4 turns of #16 AWG wire on a 180 ohm ±10%, 2 watt composition resistor and paralleled with a 24 mmfd, ±5% mica capacitor, char. E.	Parasitic Suppressor Plate V101	A-1357
PS102	SUPPRESSOR ASSEMBLY: parasitic; 124 Mc ±3 Mc; consists of 4 turns of #16 AWG wire on a 180 ohms ±10%, 2 watt composition resistor and paralleled with a 24 mmfd, ±5% mica capacitor, char. E.	Parasitic Suppressor Plate V102	A-1357
PS103	SUPPRESSOR ASSEMBLY: parasitic; 105 Mc ±3 Mc, consists of 4 turns of #16 AWG wire on a 180 ohm, ±10%, 2 watt, composition resistor and paralleled with a 30 mmfd. ±5% mica capacitor, char. E.	Parasitic Suppressor Grid V101	A-1129
PS104	SUPPRESSOR ASSEMBLY: parasitic; 105 Mc ±3 Mc, consists of 4 turns of #16 AWG wire on a 180 ohm, ±10%, 2 watt, composition resistor and paralleled with a 30 mmfd, ±5% mica capacitor, char. E.	Parasitic Suppressor Grid V102	A-1129
S101	SWITCH, rotary: 9 position, single section, with 36 deg. detent; ceramic wafer and insulator; contacts and wiper silver plated; 1/4 in. drive shaft, 2-1/2 in. lg.; 30 amp. max. current, 13 KV peak min. flash-over at 60 cps. Replacement parts: Detent section Wafer section	P.A. Band Switch	SW-165 SW-165-1 SW-165-2
S102	SWITCH, rotary: 9 position, single section; ceramic wafer and insulator; contacts and wiper silver plated; 1/4 in. drive shaft, 3 in. lg.; 30 amps. max. current, 13 KV peak min. flash-over at 60 cps.	P.A. Band Switch	SW-166
S103	SWITCH, rotary: SPST; 60 deg. detent.; two positions, one section; ceramic insulation; contacts and wipers silver plated.	Ant. Loading Switch	SW-188

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
S104	SWITCH, push button; momentary contact; normally closed; SPST, 15 amp. at 125,250, or 460 VAC, 1/2 amp. at 125 VDC, 1/4 amp. at 250 VDC.	Safety Switch	SW-169
T101	TRANSFORMER, power: filament; primary 115/230 VAC, 50/60 cycles, single phase; secondary 5V at 30 amps; insulation 1500 V peak; electro-static shield; painted steel case, 5-5/8 in. lg. o/a x 3-7/8 in sq.; four 10-32 x 1/2 in. mtg. studs on 3 in. mtg. centers at terminal end; four 10-32 x 1/2 in. deep mtg. inserts on 3 in. mtg. centers opposite end.	P.A. Filament Transformer	TF-155
TC101	THERMOCOUPLE, meter: external; range 0-8; two 7/64 in. mtg. holes on 11/16 in.x 7/8 in. mtg. centers.	Thermocouples, M303	TH-100-8
V101	TUBE, electron: radial beam power tetrode; 5 pin metal shell base and plate cap.	Power Ampl.	4-250-A
V102	TUBE, electron: radial beam power tetrode; 5 pin metal shell base and plate cap.	Power Ampl.	4-250-A
XV101	SOCKET, tube: 5 pin giant.	Socket for V101	TS-125-2
XV102	SOCKET, tube: 5 pin giant.	Socket for V102	TS-125-2

MULTIPLIER
SYMBOL GROUP 201 through 299

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
C201 A,B	CAPACITOR, variable: air; dual section, 12.5-282.5 mmfd, each section; ceramic insul., steel plate; 1/4" x 1-1/8" shaft.	Multiplier Plates Main Tuning Cap., S201	CB-127
C201 C	CAPACITOR, variable: air; 12.5-282.5 mmfd, ceramic insul., steel plates 1/4" x 4-7/8 in. shaft.	Driver Plate Main Tuning Cap., S202	CB-128
C202	CAPACITOR, fixed: mica; 1000 mmfd, ±5%; 500 wvdc; char. B.	Coupling Cap., V201	CM20B102J
C203	CAPACITOR, fixed: mica; 1000 mmfd, ±5%; 500 wvdc; char. B.	RF Bypass Cap., V201	CM20B102J
C204	CAPACITOR, fixed: mica; 10,000 mmfd, ±5%, 300 wvdc; char. C.	Cathode Bypass V201	CM35C103J
C205	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	Screen Bypass Cap., V201	CM20B102J
C206	CAPACITOR, fixed: mica; 5000 mmfd, ±5%, 500 wvdc; char. C.	P/O Key-Click Filter, V202-B	CM35C502J
C207	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	RF Bypass Cap., V201	CM20B102J
C208	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	Plate Decoupling Cap., S201-A	CM20B102J
C209	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	Plate Decoupling Cap., S201-A	CM20B102J
C210	CAPACITOR, variable: ceramic; 7-45 mmfd, 500 wvdc; char. C.	Amp. Doubler Tank Trimmer, S201-A	CV11C450
C211	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	RF Coupling Cap., S201-A	CM20B102J
C212	CAPACITOR, fixed: mica; 10 mmfd, ±5%, 500 wvdc; char. C.	P/O V201 Tank Capacity, V204	CM20C100J
C213	CAPACITOR, fixed: mica; 10,000 mmfd, ±5%, 300 wvdc; char. C.	Cathode Bypass Cap., V204	CM35C103J
C214	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	Screen Bypass Cap., V204	CM20B102J
C215	CAPACITOR, fixed: mica; 500 mmfd, ±5%, 500 wvdc; char. B.	RF Coupling Cap., V204	CM20B501J
C216	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	Plate Decoupling Cap., S201-B	CM20B102J

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
C217	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	Plate Decoupling Cap., S201-B	CM20B102J
C218	CAPACITOR, variable: ceramic; 7-45 mmfd, 500 wvdc; char. C.	Tank Trimmer Cap., S201-B	CV11C450
C219	CAPACITOR, fixed: mica; 500 mmfd, ±5% , 500 wvdc; char. B.	RF Coupling Cap., S201-B	CM20B501J
C220	CAPACITOR, fixed: mica; 500 mmfd, ±5%, 500 wvdc; char. B.	P/O LP Filter, V202-B	CM20B501J
C221	CAPACITOR, fixed: mica; 330 mmfd, ±10%, 2500 wvdc; char. B.	Plate Decoupling Cap., V205	CM45B331K
C222	CAPACITOR, fixed: mica; 330 mmfd, ±10%, 2500 wvdc; char. B.	RF Coupling Cap., V205	CM45B331K
C223	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	Screen Bypass Cap., V205	CM20B102J
C224	CAPACITOR, fixed: mica; 100 mmfd, ±5%, 500 wvdc; char. C.	DC Blocking Cap., C104	CM20101J
C225	CAPACITOR, fixed: mica; 220 mmfd, ±10%, 1200 wvdc; char. B.	P/O LP Filter V205	CM45B222K
C226	CAPACITOR, fixed: mica; 390 mmfd, ±2%, 500 wvdc; char. D.	RF Bypass Cap., S202-A	CM20D391G
C227	CAPACITOR, fixed: mica; 390 mmfd, ±5%, 500 wvdc; char. B.	RF Bypass Cap., V206 Fil.	CM20B501J
C228	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	Screen Decoupling Cap., V204	CM20B102J
C229	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	Screen Decoupling Cap., V201	CM20B102J
C230	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	P.A. Bias Decoupling Cap., S202-A	CM20B102J
E201	TERMINAL BOARD: barrier type; six 6-32 x 1/4'' screws and solder lug terminals; 2-7/8'' lg. x 7/8'' wd. x 3/4'' h. o/a; four 11/64'' mtg. holes on 2-5/8'' x 5/16'' mtg. centers.	PA Terminals	TM-100-6
E202	TERMINAL BOARD: barrier type; twelve 6-32 screws and solder lug terminals; 2-7/8'' lg. x 7/8'' wd. x 3/4'' h. o/a; four 11/64'' mtg. holes on 2-5/8'' x 5/16'' mtg. centers.	Interconnect Terminals	TM-100-12
E203	INSULATOR, pillar: round; white glazed steatite; 1/2'' lg. x 3/8'' d., tapped 6-32 x 5/8'' deep each end.	Stand-off Insulator L216	NS3W0104

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
E204	INSULATOR, pillar: round; white glazed steatite; 1/2'' lg. x 3/8'' d., tapped 6/32 x 5/8'' deep each end.	Stand-off Insulator R230	NS3W0104
E205	CONNECTOR, electron tube: heat dissipating; 7/8 in. long x 3/4 in. o.d. 6-32 binder head machine screw and one 6-32 set screw.	Plate Connector V205	HB-106-6
H201	COUPLING, shaft: flexible; steatite insulation; 1-1/4 in. diam. x 23/32 in. lg.; 1/4 in. shaft access, w/two 6/32 set-screws ea. end.	Shaft Coupling	MC-104-1
H202	COUPLING, shaft: flexible; steatite insulation; 1-1/4 in. diam. x 23/32 in. lg.; 1/4 in. shaft access, w/two 6-32 set-screws each end.	Shaft Coupling	MC-104-1
J201	CONNECTOR, coaxial: female; BNC type single hole mtg.	RF Input Terminal	UG-625/U
J202	CONNECTOR, coaxial: female; BNC type single hole mtg.	SSB Input Terminal	UG-625/U
L201	CHOKE, R.F.: fixed; 750 microhenries, ±20%.	Plate Load Choke, S201-A	CL-100-5
L202	CHOKE, R.F.: fixed; 750 microhenries, ±20%.	P/O LP Filter S201-A	CL-100-5
L203	COIL, R.F.: tuned; 17.2-28 microhenries, ±5%, Q= 50.	Tank Coil, S201-A	A-1103
L204	COIL, R.F.: tuned; 3.5-6.2 microhenries, ±5%, Q= 90.	Tank Coil, S201-A	A-1104
L205	COIL, R.F.: tuned; 40 microhenries, ±5%, Q= 45.	Plate Load Choke, V204	A-1102
L206	Not Used.		
L207	COIL, R.F.: tuned; 1.3-1.56 microhenries, ±5%, Q= 90.	Tank Coil, S201-B	A-1105
L208	Not Used.		
L209	CHOKE, R.F.: fixed; 180 microhenries, ±10%, Q= 120.	Plate Load Choke, V205	A-1096
L210	CHOKE, R.F.: fixed; 750 microhenries, ±20%.	P/O LP Filter, V205	CL-100-5
L211	COIL, R.F.: tuned; 15-23 microhenries, ±5%, Q= 80.	Tank Coil, S202	A-1108
L212	COIL, R.F.: tuned; 3.7-6.8 microhenries, ±5%, Q= 90.	Tank Coil, S202	A-1109
L213	COIL, R.F.: tuned; 82 microhenries, ±5%, Q= 100.	Tank Coil, S202	A-1191

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
L214	COIL, R.F.: tuned; .30-.34 microhenries, Q=250.	Tank Coil, S202	A-1192
	w/CORE, carbonyl: grade E; 1'' lg. x 1/2'' d; 6-32 x 1-1/2'' tuning screw; brass, slotted. (Supplied separate item for spares).	Tuning Slug for A-1192	CI-113
L215	CHOKE, R.F.: fixed; 750 microhenries, ±20%.	P/O LP Filter, V205	CL-100-5
L216	COIL, R.F.: fixed; 180 microhenries, ±10 microhenries, Q=50.	P/O LP Filter, S202	A-1126
PS201	SUPPRESSOR, parasitic: 6 close wound turns #30 DSC wire on a 100 ohm ±10%, 1/2 watt composition resistor.	Parasitic Suppressor, V204	A-1119
PS202	SUPPRESSOR, parasitic: 6 close wound turns #30 DSC wire on a 100 ohm ±10%, 1/2 watt composition resistor.	Parasitic Suppressor V204	A-1119
R201	RESISTOR, fixed: composition; 100,000 ohms, ±10%; 1/2 watt.	Grid Leak Res., V201	RC20GF104K
R202	RESISTOR, fixed: composition; 100,000 ohms, ±10%; 1 watt.	P/O Keyer Load, Res., V202-A	RC30GF104K
R203	RESISTOR, fixed: w.w.; 50,000 ohms, ±5%; 5 watts.	Keyer Plate Load Res., V202-A	RW-109-43
R204	RESISTOR, fixed: composition; 47,000 ohms, ±10%; 1/2 watt.	Grid Current Limiting Res., V202-A	RC20GF473K
R205	RESISTOR, fixed: w.w.; 25,000 ohms, ±5%; 10 watts.	P/O Cathode Bias, V202-A	RW-109-38
R206	RESISTOR, fixed: composition; 1000 ohms, ±10%; 1/2 watt.	P/O Cathode Bias, V202-A	RC20GF102K
R207	RESISTOR, fixed: composition; 180 ohms, ±10%; 1/2 watt.	Cathode Bias Res., V201	RC20GF181K
R208	RESISTOR, fixed: w.w.; 15,000 ohms, ±5%; 10 watts.	Voltage Dropping Res., V203	RW-109-36
R209	RESISTOR, fixed: composition; 100,000 ohms, ±10%; 1/2 watt.	P/O Key-Click Filter, V202-A	RC20GF104K
R210	RESISTOR, fixed: composition; 5600 ohms, ±10%; 1/2 watt.	Screen Decoupling Res., V201	RC20GF562K
R211	RESISTOR, variable: w.w.; 25,000 ohms linear, ±10%; 4 watts; shaft 1/4 '' d. x 7/8'' lg., round.	Drive Control Res., V202-B	RA106ASRD253A

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
R212	RESISTOR, fixed: composition; 1 megohm, ±10%; 1/2 watt.	P/O Voltage Div.	RC20GF105K
R213	RESISTOR, fixed: wire wound; 2250 ohms; 47 ma; 5 watts.	P/O LP Filter V204	RW-107-41
R214	RESISTOR, fixed: composition; 100,000 ohms, ±10%; 1/2 watt.	Grid Leak Bias Res., V204	RC20GF104K
R215	RESISTOR, fixed: composition; 470 ohms, ±10%; 1 watt.	Cathode Bias Res., V204	RC30GF471K
R216	RESISTOR, fixed: composition; 5600 ohms, ±10%; 1/2 watt.	Screen Decoupling Res., V204	RC20GF562K
R217	RESISTOR, fixed: composition; 10,000 ohms; ±10%; 2 watts.	P/O Voltage Divider V202-B	RC42GF103K
R218	RESISTOR, fixed: composition; 82,000 ohms, ±10%; 1 watt.	P/O Keyer Load, E202	RC30GF823K
R219	RESISTOR, fixed: composition; 47,000 ohms, ±10%; 2 watts.	P/O Voltage Divider Divider, V202-B	RC42GF473K
R220	RESISTOR, fixed: composition; 10,000 ohms, ±10%; 2 watts.	Grid Leak Bias Res., V205	RC42GF103K
R221	RESISTOR, fixed: composition; 180 ohms, ±10%; 2 watts.	Meter Substituting Res., V203	RC42GF181K
R222	RESISTOR, fixed: composition; 180 ohms, ±10%; 2 watts.	Meter Substituting Res., S203	RC42GF181K
R223	RESISTOR, fixed: composition; 180 ohms, ±10%; 2 watts.	Meter Substituting Res., S203	RC42GF181K
R224	RESISTOR, fixed: composition; 180,000 ohms, ±10%; 2 watts.	P/O Voltage Dividers, E202	RC42GF184K
R225	RESISTOR, fixed: composition; 22,000 ohms, ±10%; 1/2 watt.	P/O Voltage Dividers, V202-A	RC20GF223K
R226	RESISTOR, fixed: composition; 470,000 ohms, ±10%; 2 watts.	PA Screen Protecting S203	RC42GF474K
R227	RESISTOR, fixed: composition; 680 ohms, ±10%; 2 watts.	SSB Input Terminating Res., S204	RC42GF681K
R228	RESISTOR, fixed: composition; 680 ohms, ±10%; 2 watts.	SSB Input Terminating Res., S204	RC42GF681K
R229	RESISTOR, fixed: w.w.; 1000 ohms, ±5%; 10 watts.	P.A. Grid Leak Bias, S202	RW-109-24
R230	RESISTOR, fixed: w.w.; 10 ohms, ±5%; 5 watts.	Driver 2-4 Mcs. Band Loading Res., S202	RR-114-10-W

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
S201 A,B	SWITCH, rotary: 2 section, 4 position; ceramic wafers; contacts and wipers silver plated; 1/4'' drive shaft, 3-3/8'' lg., 3/8'' flatted.	P/O Driver Band	SW-171
S202, A,B	SWITCH, rotary: 2 section, 4 position; ceramic wafer; contacts and wipers silver plated; 1/4 '' d. drive shaft, 1-7/8'' lg., 3/8'' flatted.	P/O Driver Band	SW-172
S203	SWITCH, rotary: 1 section, 3 position; ceramic wafer; contacts and wipers silver plated; 1/4'' d. drive shaft, 7/8'' lg.	Meter Switch	SW-173
S204	SWITCH, rotary: 1 section, 2 position; mycalex wafers; contacts and wipers silver plated; 1/4'' drive shaft, 7'' lg.	SSB Switch	SW-183
T201	TRANSFORMER, RF: step-up; 2-32 Mc; pri, pins 2 and 3, 75 ohms unbal.; sec., pins 1 and 3, 300 ohms unbal.	Impedance Matching	TR-141
V201	TUBE, electron: sharp cutoff R.F. pentode; 7 pin miniature.	Amplifier-Doubler	6AH6
V202	TUBE, electron: duo triode; 9 pin miniature.	Keyer	12AT7
V203	TUBE, electron: voltage regulator; 7 pin miniature.	Voltage Regulator	OA2
V204	TUBE, electron: beam power amplifier; 7 pin miniature.	Doubler-Quardrupler	6BF5
V205	TUBE, electron: beam power; large wafer octal base with sleeve.	P.A. Driver	6146
V206	TUBE, electron: duo triode; 9 pin miniature.	Keyer Clamp	12AT7
XV201	SOCKET, tube: 7 pin miniature.	Socket for V201	TS102P01
XV202	SOCKET, tube: 9 pin miniature.	Socket for V202	TS103P01
XV203	SOCKET, tube: 7 pin miniature.	Socket for V203	TS102P01
XV204	SOCKET, tube: 7 pin miniature.	Socket for V204	TS102P01
XV205	SOCKET, tube: octal; ceramic.	Socket for V205	TS101P01
XV206	SOCKET, tube: 9 pin miniature.	Socket for V206	TS103P01

MASTER OSCILLATOR AND FRONT PANEL
SYMBOL GROUP 301 through 399

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
C301	CAPACITOR ASSEMBLY: variable; air dielectric; 21.0 to 220 mmfd.	VMO Tuning Cap., V301	A-1000
C302	CAPACITOR, variable: air dielectric; 5.0 to 25.0 mmfd.	VMO Correction Cap., V301	CB-105
C303	CAPACITOR, variable: air dielectric; 2.8 to 11.0 mmfd.	VMO Trimmer Cap., V301	CB-121
C304	CAPACITOR, fixed: ceramic; 10 mmfd, ±.25 mmfd., 500 wvdc.	VMO Padder Cap., V301	CC107RG100C
C305	CAPACITOR, fixed: ceramic; 270 mmfd, ±5%; 500 wvdc.	VMO Grid Coupling Cap., V301	CC45LG271J
C306	CAPACITOR, fixed: ceramic; 270 mmfd, ±5%; 500 wvdc.	VMO Cathode Coupling Cap., V301	CC45LG271J
C307	CAPACITOR, fixed: mica; .01 mfd, ±5%; 300 wvdc, char. C.	MO Plate Bypass Cap., V301	CM35C103J
C308	CAPACITOR, fixed: mica; .01 mfd, ±10%; 300 wvdc, char. B.	Cathode Follower Plate Bypass Cap., V302A	CM35B103K
C309	CAPACITOR, fixed: mica; 1,000 mmfd, ±5%; 500 wvdc, char. B.	Plate Coupling Cap., 100 Kc Osc., V302B	CM20B102J
C310	CAPACITOR, fixed: mica; .01 mfd, ±5%; 300 wvdc, char. C.	RF Bypass	CM35C103J
C311	CAPACITOR, variable: air dielectric; 3.5 to 50 mmfd.	100 Kcs Adjust, V302B	CT-103-1
C312	CAPACITOR, variable: air dielectric; 240 mmfd, ±5%; 500 wvdc, char. C.	Plate Coupling Cap., 100 Kcs. V302B	CM20C241J
C313	CAPACITOR, fixed: mica; .01 mfd, ±5%; 300 wvdc, char. C.	Inner Oven Thermostat Arc Suppressor, E301	CM35C103J
C314	CAPACITOR, fixed: mica; .01 mfd, ±5%; 300 wvdc, char. C.	Relay Arc Suppressor, E301	CM35C103J
C315	CAPACITOR, fixed: paper; .01 mfd, ±20%; 400 wvdc.	Outer Oven Thermostat Arc Suppressor, E302	CN-100-4
C316	CAPACITOR, fixed: mica; 500 mmfd, ±5%, 500 wvdc; char. B.	RF Meter Decoupling Cap., M303	CM20B501J

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
C317	CAPACITOR, fixed: mica; 500 mmfd, ±5%; 500 wvdc; char. B.	RF Meter Decoupling Cap., M303	CM20B501J
C318	CAPACITOR, fixed: mica; .01 mfd, ±5%; 300 wvdc, char. C.	RF Bypass	CM35C103J
C319	CAPACITOR, fixed: ceramic; 8.2 mmfd, ±5%, 500 wvdc.	VMO Temperatures Compensation	CC-102-5
C320	CAPACITOR, fixed: mica; .01 mfd, ±10%; 300 wvdc, char. B.	RF Bypass, Cap., V301	CM35B103K
E301	BOARD, terminal: barrier type; eight 6-32 x 1/4'' binding head machine screw.	Inner Oven Terminal	TM-102-8
E302	BOARD, terminal: barrier type; eight 6-32 x 1/4'' binding head machine screw.	Outer Oven Terminal	TM-102-8
E303	BOARD, terminal: barrier type; fourteen 6-32 x 1/4'' binding head machine screw.	Oven - PS Interconnect	TM-102-14
E304	INSULATOR, pillar: round; white glazed steatite; 1/2 in. lg. x 3/8 in. d., tapped 6-32 x 5/8 in. deep each end.	Stand-off for L301	NS3W0104
E305	INSULATOR, pillar: round; white glazed steatite; 1/2 in. lg. x 3/8 in. d., tapped 6-32 x 5/8 in. deep each end.	Stand-off for L301	NS3W0104
I301	LAMP, neon: 105-125 v; bulb T-3-1/4 clear; 1/25 watt; 1-13/16'' lg. overall; miniature bayonet base.	Inner Oven Indicator	BI-100-51
I302	LAMP, neon: 105-125 v; bulb T-3-1/4 clear; 1/25 watt; 1-13/16'' lg. overall; miniature bayonet base.	Outer Oven Indicator	BI-100-51
I303	LAMP, neon: 105-125 v; bulb T-3-1/4 clear; 1/25 watt; 1-13/16'' lg. overall; miniature bayonet base.	Zero Beat Indicator	BI-100-51
J301	JACK, open circuit; telephone.	Phone Jack	JJ-034
J302	JACK, open circuit: telephone.	Key Jack	JJ-034
J303	CONNECTOR, receptacle: AN pin type; one contact; 35 amps., 3000 VDC, 2100 VAC (rms); mtg. dim. 1.156 in. dia. cut out w/four 1/8 in. holes on 1-1/16 in. mtg.	Meter Jack	AN3102A-18-16P
L301	COIL, RF: tuned; 27.5-28 microhenries; Q= 200; threaded ceramic coil form, w/core, powdered iron; grade GB; 1/2 in. lg. x 3/8 in. diam; 6-32 x 1-9/16 in. tuning screw; brass, slotted. (Supplied seperate item for spares.)	VMO Tank Coil, V301	A-243

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
L302	CHOKE, RF: 1 millihenry, 50 ma.	VMO Cathode Choke, V301	CL-101-2
L303	CHOKE, RF: 750 microhenries, ±20%.	Plate Decoupling Choke, V302A	CL-100-5
M301	METER, DC: 0-100 milliamps; 3'' x 3-1/8'' sq. case; four 4-40 mtg. studs on 2-1/4'' x 2-1/4'' mtg. centers with one 2-13/16 d. cutout.	Driver Plate, P.A. Grid , and P.A. Screen Grid Meter	MR-110-100-S
M302	METER, DC: 0-750 milliamps; 3'' x 3-1/8'' sq. case; four 4-40 mtg. studs on 2-1/4'' x 2-1/4'' mtg. centers with one 2-13/16 d. cutout.	P.A. Plate Meter	MR-110-750-S
M303	METER, RF: 0-8 amps; 3'' x 3-1/8'' sq. case; four 4-40 mtg. studs on 2-1/4'' x 2-1/4'' mtg. centers with one 2-13/16'' d. cutout.	RF Output Meter	MR-109
P301	CONNECTOR, coaxial: male contact; BNC type, for RG-59, 62, 71/U.	Oscillator PS Interconnect	UG-260/U
P302	CONNECTOR, plug: AN pin type; 7 contacts rated at 20 amps, 200 VDC, 150 VAC (rms).	VMO Output	AN3106B-16S-1P
	CLAMP, cable: 9/16 in. diam. max. cable entry; includes washer and neoprene gasket.	Clamp for P302	AN3057-8
	SLEEVE, bushing: neoprene; 2 in. lg. x .438 in. O.D. x .312 in. I.D.	Bushing for P302	AN3420-6A
	SLEEVE, bushing: neoprene; 2 in. lg. x .531 in. O.D. x .438 in. I.D.	Bushing for P302	AN3420-8A
R301	RESISTOR, fixed: composition; 3900 ohms, ±10%; 1 watt.	Plate Decoupling Res., V301	RC30GF392K
R302	RESISTOR, fixed: composition; 1,000 ohms, ±10%; 1 watt.	Cathode Output Res., V302A	RC30GF102K
R303	Not Used.		
R304	RESISTOR, fixed: composition; 47,000 ohms, ±10%; 1/2 watt.	Plate Load Res., V302B	RC20GF473K
R305	RESISTOR, fixed: composition; 4700 ohms, ±10%; 1/2 watt.	Cathode Output Res., V302B	RC20GF472K
R306	RESISTOR, fixed: composition; 470,000 ohms, ±10%; 1/2 watt.	Grid Leak Res., V302B	RC20GF474K
R307 A,B	RESISTOR, fixed: wire wound; heater element, two sections 1300 ohms ea section, insulated.	Inner Oven Heaters	RR-105

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
R308 A,B	RESISTOR, fixed: wire wound; heater element, two sections 160 ohms ea section, insulated.	Outer Oven Heaters	RR-106
R309	RESISTOR, fixed: composition; 9100 ohms, ±5%; 2 watts.	Relay Drop Res., 220 volt oper., E301	RC42GF912J
R310	RESISTOR, fixed: composition; 9100 ohms, ±5%; 2 watts.	Relay Drop Res., 220 volt oper., E301	RC42GF912J
R311	RESISTOR, fixed: composition; 100 ohms, ±10%; 1/2 watt.	Inner Thermostat Arc Suppressor, E301	RC20GF101K
R312	RESISTOR, fixed: composition; 220,000 ohms, ±10%; 1/2 watt.	Inner Oven Indicator Protector, E301	RC20GF224K
R313	RESISTOR, fixed: composition; 220,000 ohms, ±10%; 1/2 watt.	Outer Oven Indicator Protector E302	RC20GF224K
R314	RESISTOR, fixed: composition; 100 ohms, ±10%; 1/2 watt.	Outer Oven Thermostat Arc Suppressor, E302	RC20GF101K
R315	RESISTOR, fixed: composition; 100 ohms, ±10%; 1/2 watt.	Relay Arc Suppressor, E303	RC20GF101K
R320	RESISTOR, fixed: composition; 22,000 ohms, ±10%; 1/2 watt.	VMO Grid Leak	RC20GF223K
S301	SWITCH, thermostatic: bimetallic; operate at 70° C, ±0.5°C.	Inner Oven Thermostat	SS-103-C-70
S302	SWITCH, thermostatic: bimetallic; operate at 80° C, ±2°C.	Inner Oven Safety Thermostat	SS-100-3
S303	SWITCH, thermostatic: bimetallic, operate at 60°C, ±2°C.	Outer Oven Thermostat	SS-100-1
S304	SWITCH, lever: two positions, non-locking; silver contacts, 3 amps at 120 VAC.	Antenna Loading Switch	SW-186
V301	TUBE, electron: HF power triode; miniature 7 pin.	VMO	6C4
V302	TUBE, electron: medium mu duo triode; miniature 9 pin.	Cathode Follower 100 Kcs. Osc.	12AU7
XI301	LIGHT, indicator: w/clear white lens, for miniature bayonet base T-3-1/4 bulb.	Socket for I301	TS-106-1
XI302	LIGHT, indicator: w/red frosted lens, for miniature bayonet base T-3-1/4 bulb.	Socket for I302	TS-106-1

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
XI303	LIGHT, indicator: w/red frosted lens, for miniature bayonet base T-3-1/4 bulb.	Socket for I303	TS-106-1
XV301	SOCKET, tube: 7 pin miniature.	Socket for V301	TS102P01
XV302	SOCKET, tube: 9 pin miniature.	Socket for V302	TS103P01
XY301	SOCKET, crystal: .487'' spacing, for .095'' pins.	Socket for Y301	TS-105-1
Y301	CRYSTAL UNIT: quartz; 100 Kcs.	100 Kcs. Crystal	CR-100

INTERCONNECT
SYMBOL GROUP 401 through 499

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
C401	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	Plate Bypass Cap., V402	CM20B102J
C402	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	RF Input, DC Blocking Cap., V402	CM20B102J
C403	CAPACITOR, fixed: mica; 10,000 mmfd, ±5%, 300 wvdc; char. C.	P/O LP Filter, V403	CM35C103J
C404	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	RF Coupling Cap., V404	CM20B102J
C405	CAPACITOR, fixed: mica; 10,000 mmfd, ±5%, 300 wvdc; char. C.	C.F. Plate Bypass Cap., V404	CM35C103J
C406	CAPACITOR, fixed: mica; 10,000 mmfd, ±5%, 300 wvdc; char. C.	Cathode Bypass Cap., V403	CM35C103J
C407	CAPACITOR, fixed: mica; 10,000 mmfd, ±5%, 300 wvdc; char. C.	RF Bypass Cap., V404	CM35C103J
C408	CAPACITOR, fixed: mica; 10,000 mmfd, ±5%, 300 wvdc; char. C.	C.F. Output, DC Blocking Cap., V404	CM35C103J
C409	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc, char. B.	RF Coupling Cap., V405	CM20B102J
C410	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	LP Filter Cap., V403	CM20B102J
C411	CAPACITOR, fixed: moulded plastic; .10 mfd, +40, -10%; 400 wvdc.	DC Blocking Cap., V405	CN-100-4
C412	CAPACITOR, fixed: mica; 5 mmfd, ±20%, 500 wvdc; char. B.	DC Blocking Cap., V405	CM20B050M
C413	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	Screen Bypass Cap., V405	CM20B102J
C414	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	P/O LP Filter V405	CM20B102J
C415	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	P/O LP Filter V405	CM20B102J
C416	CAPACITOR, fixed: moulded plastic; .10 mfd, +40, -20%; 400 wvdc.	Audio Coupling Cap., V406	CN-100-4
C417	CAPACITOR, fixed: moulded plastic; .10 mfd, +40, -20%; 400 wvdc.	Audio Coupling Cap., V406	CN-100-4
C418	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	RF Coupling Cap., V402	CM20B102J

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
C419	CAPACITOR, fixed: mica; 1000 mmfd, ±5%, 500 wvdc; char. B.	Screen Bypass Cap., V403	CM20B102J
C420	CAPACITOR, variable: ceramic; 7-45 mmfd, 500 wvdc.	Crystal Freq. Correcting Cap., S401	CV11C450
C421	CAPACITOR, fixed: mica; .01 mfd, ±5%, 300 wvdc.	RF Bypass	CM35C103J
C422	CAPACITOR, fixed: mica; .01 mfd, ±5%, 300 wvdc.	RF Bypass Cap., V403	CM35C103J
J401	CONNECTOR, receptacle: AN socket type; 7 contacts rated at 20 amps, 200 VDC, 150 VAC (rms); mtg. dim. 1-1/32''diam. cut out with four 5/32'' diam. holes on 31/32'' mtg. centers.	MO Power Connector	AN3102A-16S-1S
J402	CONNECTOR, coaxial: female contact; BNC type, single hole mtg.	MO Input	UG-625/U
J403	CONNECTOR, coaxial: female contact; BNC type, single hole mtg.	Drive Output	UG-625/U
J404	CONNECTOR, coaxial: female contact; BNC type, single hole mtg.	Drive Input	UG-625/U
J405	CONNECTOR, receptacle: AN pin type; 4 contacts rated at 35 amps, 18 contacts rated at 20 amps; 200 VDC, 150 VAC (rms); mtg. dim. 1.782'' diam. cutout with four 9/64'' diam. holes on 1-9/16'' mtg. centers.	RTF Power Input Connector	AN3102A-28-11P
K401	RELAY, assembly: 4500 ohms DC.	Inner Oven Control Relay	A-123
L401	CHOKE, RF: fixed: 750 microhenries, ±20%.	P/O LP Filter, V403	CL-100-5
L402	CHOKE, RF: fixed: 750 microhenries, +20%.	Plate Decoupling	CL-100-5
L403	CHOKE, RF: fixed: 750 microhenries, ±20%.	C.F. Load Coil, V404	CL-100-5
P401	CONNECTOR, coaxial: male contact; BNC type, for RG-59,62, 71/U cable.	R.F. Output	UG-260/U
R401	RESISTOR, fixed: w.w.; 6000 ohms, ±5%; 10 watts.	Voltage Dropping Res., V401	RW-109-45
R402	RESISTOR, fixed: composition; 33,000 ohms, ±10%; 1 watt.	Plate Voltage Dropping Res., V402	RC30GF333K
R403	RESISTOR, fixed: composition; 4700 ohms, ±10%; 1/2 watt.	Grid Leak Res., V402	RC20GF472K
R404	RESISTOR, fixed: composition; 1000 ohms, ±10%; 1/2 watt.	C.F. Cathode Load Res., V402	RC20GF102K

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
R405	RESISTOR, fixed: composition; 3,300 ohms, ±10%; 1/2 watt.	Plate Load Res., V403	RC20GF332K
R406	RESISTOR, fixed: composition; 82,000 ohms, ±10%; 1/2 watt.	Screen Dropping Res., V403	RC20GF823K
R407	RESISTOR, fixed: composition; 100,000 ohms, ±10%; 1/2 watt.	Grid Leak Res., V404	RC20GF104K
R408	RESISTOR, fixed: composition; 180 ohms, ±10%; 1/2 watt.	Cathode Bias Res., V403	RC20GF181K
R409	RESISTOR, fixed: composition; 100,000 ohms, ±10%; 1/2 watt.	Grid Leak Res., V403	RC20GF104K
R410	RESISTOR, fixed: composition; 1000 ohms, ±10%; 1/2 watt.	Cathode Bias Res., V404	RC20GF102K
R411	RESISTOR, fixed: composition; 100,000 ohms, ±10%; 1/2 watt.	Grid Leak Res., V405	RC20GF104K
R412	RESISTOR, fixed: composition; 56,000 ohms, ±10%; 1/2 watt.	Voltage Dropping Res., V405	RC20GF563K
R413	RESISTOR, fixed: composition; 1 megohm, ±10%; 1/2 watt.	Plate Load Res., V405	RC20GF105K
R414	RESISTOR, fixed: composition; 100,000 ohms, ±10%; 1/2 watt.	Screen Dropping Res., V405	RC20GF104K
R415	Not Used.		
R416	RESISTOR, fixed: composition; 1000 ohms, ±10%; 1/2 watt.	P/O LP Filter, V405	RC20GF102K
R417	RESISTOR, fixed: composition; 220,000 ohms, ±10%; 1/2 watt.	Plate Load Res., V406	RC20GF224K
R418	RESISTOR, fixed: composition; 82,000 ohms, ±10%; 2 watts.	Plate Load Res., V406	RC42GF823K
R419	RESISTOR, fixed: composition; 100,000 ohms, ±10%; 1/2 watt.	Grid Leak Bias Res., V405	RC20GF104K
R420	RESISTOR, fixed: composition; 4.7 megohm, ±10%; 1/2 watt.	Grid Leak Bias Res., V406	RC20GF475K
R421	RESISTOR, fixed: composition; 220,000 ohms, ±10%; 1/2 watt.	Grid Leak Bias Res., V406	RC20GF224K
R422	RESISTOR, fixed: composition; 10,000 ohms, ±10%; 1/2 watt.	Output Load Res., V406	RC20GF103K
R423	RESISTOR, fixed: w.w.; 30 ohms, ±5%; 5 watts.	P/O External Drive Load, S402-B	RR-116-30-W
R424	RESISTOR, fixed: composition; 56,000 ohms, ±10%; 1/2 watt.	P/O Relay Assembly, K401	RC20GF563K

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
R425	RESISTOR, fixed: w.w.; 50 ohms, ±5%; 5 watts.	P/O External Drive Load S402-B	RR-116-50-W
R426	RESISTOR, variable: ballast vacuum tube type; .43 to .49 amps, 10.1 to 15.1 volts.	Filament Ballast Res., J405	RR-109
S401 A,B, C	SWITCH, rotary: 3 section, 5 position; wafer "A & B" bakelite, wafer "C" ceramic; contacts and wipers silver plated; 1/4" diam. drive shaft, 10-1/2" lg.	Function Switch	SW-175
S402	SWITCH, rotary: 2 section, 5 position; ceramic wafers; contacts & wipers silver plated; 1/4" diam. drive shaft, 7/8" lg.	Drive Switch	SW-174
V401	TUBE, electron: voltage regulator; 7 pin miniature.	Voltage Regulator	OA2
V402	TUBE, electron: HF power triode; 7 pin miniature.	Cathode Follower	6C4
V403	TUBE, electron: sharp cutoff R.F. pentode; 7 pin miniature.	Xtal Oscillator Amplifier	6AH6
V404	TUBE, electron: medium mu duo triode; 9 pin miniature.	C.F. Output	12AU7
V405	TUBE, electron: heptode converter; 7 pin miniature.	Mixer	6BE6
V406	TUBE, electron: medium mu duo triode; 9 pin miniature.	Audio Amplifier	12AU7
XK401	SOCKET, tube: octal.	Socket for K401	TS101P01
XR426	SOCKET, tube: 9 pin miniature.	Socket for R426	TS103P01
XV401	SOCKET, tube: 7 pin miniature.	Socket for V401	TS102P01
XV402	SOCKET, tube: 7 pin miniature.	Socket for V402	TS102P01
XV403	SOCKET, tube: 7 pin miniature.	Socket for V403	TS102P01
XV404	SOCKET, tube: 9 pin miniature.	Socket for V404	TS103P01
XV405	SOCKET, tube: 7 pin miniature.	Socket for V405	TS102P01
XV406	SOCKET, tube: 9 pin miniature.	Socket for V406	TS103P01
XY401	SOCKET, crystal: .486" spacing for .050" pin diam.	Socket for Y401	TS-104-1
XY402	SOCKET, crystal: .486" spacing for .050" pin diam.	Socket for Y402	TS-104-1
XY403	SOCKET, crystal: .486" spacing for .050" pin diam.	Socket for Y403	TS-104-1

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
Y401	CRYSTAL UNIT: quartz, 2 to 4 Mcs., (Supplied only on customer request.)	Xtal 3	CR-18/U
Y402	CRYSTAL UNIT: quartz, 2 to 4 Mcs., (Supplied only on customer request.)	Xtal 2	CR-18/U
Y403	CRYSTAL UNIT: quartz, 2 to 4 Mcs., (Supplied only on customer request.)	Xtal 1	CR-18/U

CABINET/FRAME
SYMBOL GROUP 501 through 599

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
B501	MOTOR, AC: 2 pole; 3000 rpm; 1/70 hp; 115 VAC, 50/60 cps, 40 watts; counter-clockwise rotation; 1/4 in. dia. shaft, 1-3/8 in. lg., flatted 3/64 in. x 1 in. lg; mtg. dim. two 13/16 in. dia. holes on 2-7/8 in. mtg. centers and one 1-1/2 in. dia. hole.	Blower Motor	MO-107-CCW
C501	CAPACITOR, fixed: mica; .01 mfd, ±5%, char. C, 300 wvdc.	RF Bypass Cap.	CM35C103J
C502	CAPACITOR, fixed: mica; .01 mfd, ±5%, char. C, 300 wvdc.	RF Bypass Cap.	CM35C103J
C503	CAPACITOR, fixed: mica; .01 mfd, ±5%, char. C, 300 wvdc.	RF Bypass Cap.	CM35C103J
C504	CAPACITOR, fixed: mica; .01 mfd, ±5%, char. C, 300 wvdc.	RF Bypass Cap.	CM35C103J
C505	CAPACITOR, fixed: mica; .01 mfd, ±5%, char. C, 300 wvdc.	RF Bypass Cap.	CM35C103J
C506	CAPACITOR, fixed: mica; .01 mfd, ±5%, char. C, 300 wvdc.	RF Bypass Cap.	CM35C103J
C507	CAPACITOR, fixed: mica; .01 mfd, ±5%, char. C, 300 wvdc.	RF Bypass Cap.	CM35C103J
C508	CAPACITOR, fixed: mica; .01 mfd, ±5%, char. C, 300 wvdc.	RF Bypass Cap.	CM35C103J
C509	CAPACITOR, fixed: mica; .01 mfd, ±5%, char. C, 300 wvdc.	RF Bypass Cap.	CM35C103J
C510	CAPACITOR, fixed: mica; .01 mfd, ±5%, char. C, 300 wvdc.	RF Bypass Cap.	CM35C103J
C511	CAPACITOR, fixed: mica; .01 mfd, ±5%, char. C, 300 wvdc.	RF Bypass Cap.	CM35C103J
C512	CAPACITOR, fixed: mica; .01 mfd, ±5%, char. C, 300 wvdc.	RF Bypass Cap.	CM35C103J
C513	CAPACITOR, fixed: mica; .01 mfd, ±5%, char. C, 300 wvdc.	RF Bypass Cap.	CM35C103J
E501	BOARD, terminal: general purpose barrier type, fourteen 6-32 binding head machine screws; moulded phenolic.	Control Terminals	TM-100-14
E502	BOARD, terminal: general purpose barrier type, two 6-32 binding head machine screws; moulded phenolic.	Blower Terminals	TM-100-2

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
E503	CLIP, electrical: white ceramic; phosphor bronze spring clip to fit a 9/16 in. dia. tube cap.	P/O W506	HB-102-1
E504	CLIP, electrical: white ceramic; phosphor bronze spring clip to fit a 9/16 in. dia. tube cap.	P/O W507	HB-102-1
J501	CONNECTOR, receptacle: male recessed; locking type; polarized; 3 contacts; 20 amps; mtg. dim. 2.093 in. diam. cutout w/three 3/16 in. holes on 1.250 in. radius, 120 deg. apart.	AC Power Input	PL-133-NG
J502	CONNECTOR, receptacle: coaxial; HN type; mtg. dim. 21/32 in. diam. cutout w/four .125 in. holes on .906 in. mtg. centers.	RF Power Output	UG-560/U
J503	CONNECTOR, receptacle: AN pin type; one contact; 35 amps, 3000 VDC, 2100 VAC (rms); mtg. dim. 1.156 in. diam. cutout w/four 1/8 in. holes on 1-1/16 in. mtg. centers.	H.V. Bypass Connector	AN3102A-18-16P
J504	CONNECTOR, receptacle: AN socket type; one contact; 35 amps, 3000 VDC, 2100 VAC (rms); mtg. dim. 1.156 in. diam. cutout w/four 1/8 in. holes on 1-1/16 in. mtg. centers.	H.V. Bypass Connector	AN3102A-18-16S
J505	CONNECTOR, receptacle: AN pin type; 16 contacts; 20 amps, 200 VDC, 150 VAC (rms); mtg. dim. 1.532 in. diam. cutout w/four 9/64 in. holes on 1-3/8 in. mtg. centers.	Dummy Patch Connector	AN3102A-24-5P
J506	ADAPTER, connector: UHF type; 1 female contact on each end; mtg. dim. 41/64 in. dia. cutout.	Driver Input	PL-274
J507	ADAPTER, connector: UHF type; 1 female contact on each end; mtg. dim. 41/64 in. dia. cutout.	Driver Output	PL-274
L501	REACTOR, filter: 2 mhy, ±.1 mhy.	Line Filter	CL-120-1
L502	REACTOR, filter: 2 mhy, ±.1 mhy.	Line Filter	CL-120-1
P501	CONNECTOR, plug: AN socket type; 16 contacts; 20 amps, 200 VDC, 150 VAC (rms).	Modulator Input	AN3106B-24-5S
	CLAMP, cable: 1 in. diam. max. cable entry; includes washer and neoprene gasket.	Clamp for P501	AN3057-16
	SLEEVE, bushing: neoprene; 2 in. lg. x .938 in. O.D. x .750 in. I.D.	Bushing for P501	AN3420-16A

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
	SLEEVE, bushing: neoprene; 2 in. lg. x .750 in. O.D. x .541 in. I.D.	Bushing for P501	AN3420-12A
P502	CONNECTOR, plug: AN socket type; 4 contacts; 35 amps, 18 contacts; 20 amps; 200 VDC, 150 VAC (rms).	Power Input to RTP	AN3106B-28-11S
	CLAMP, cable: 1 in. diam. max. cable entry; includes washer and neoprene gasket.	Clamp for P502	AN3057-16
	SLEEVE, bushing: neoprene; 2 in. lg. x .938 in. O.D. x .750 in. I.D.	Bushing for P502	AN3020-16A
P503	CONNECTOR, plug: AN pin type; 4 contacts; 35 amps, 18 contacts; 20 amps; 200 VDC 150 VAC (rms).	Power Output from RTP	AN3106B-28-11P
	CLAMP, cable: 1 in. diam. max. cable entry; includes washer and neoprene gasket.	Clamp for P503	AN3057-16
	SLEEVE, bushing: neoprene; 2 in. lg. x .938 in. O.D. x .750 in. I.D.	Bushing for P503	AN3420-16A
P504	CONNECTOR, plug: AN socket type; 4 contacts; 35 amps, 18 contacts; 20 amps; 200 VAC, 150 VAC (rms).	Power Input to Interconnect	AN3106B-28-11S
	CLAMP, cable: 1 in. diam. max. cable entry; includes washer and neoprene gasket.	Clamp for P504	AN3057-16
	SLEEVE, bushing: neoprene; 2 in. lg. x .938 in. O.D. x .750 in. I.D.	Bushing for P504	AN3420-16A
P505	CONNECTOR, plug: AN type; 1 contact; 35 amps; 3000 VDC, 2100 VAC (rms).	Modulator Input Connector	AN3106B-18-16P
	CLAMP, cable: 5/8 in. diam. max. cable entry; includes washer and neoprene gasket.	Clamp for P505	AN3057-10
	SLEEVE, bushing: neoprene; 2 in. lg. x .438 in. O.D. x .312 in. I.D.	Bushing for P505	AN3420-6A
	SLEEVE, bushing: neoprene; 2 in. lg. x .625 in. O.D. x .438 in. I.D.	Bushing for P505	AN3420-10A
P506	CONNECTOR, plug: AN socket type; 1 contact; 35 amps; 3000 VDC, 2100 VAC	P.A. H.V. Input Connector	AN3106B-18-16S
	CLAMP, cable: 5/8 in. diam. max. cable entry; includes washer and neoprene gasket.	Clamp for P506	AN3057-10
	SLEEVE, bushing: neoprene; 2 in. lg. x .438 in. O.D. x .312 in. I.D.	Bushing for P506	AN3420-6A

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
	SLEEVE, bushing: neoprene; 2 in. lg x .625 in. O.D. x .438 in. I.D.	Bushing for P506	AN3420-10A
P507	CONNECTOR, plug: coaxial; UHF type; one contact; 500 VDC peak; mica insulation.	XFK Output Plug	PL-259A-MICA
P508	CONNECTOR, plug: coaxial; BNC type; one contact; 500 VDC peak; bayonet locking type.	Driver Input Plug	UG-260/U
P509	CONNECTOR, plug: coaxial; BNC type; one contact; 500 VDC peak; bayonet locking type.	Driver Output Plug	UG-260/U
P510	CONNECTOR, plug: coaxial; UHF type; one contact; 500 VDC peak; mica insulation.	XFK Input Plug	PL-259A-MICA
S501	SWITCH, push button: momentary contact; normally closed; SPST, 15 amp. at 125, 250 V, or 460 VAC, 1/2 amp. at 125 VDC, 1/4 amp. at 250 VDC.	Interlock Switch	SW-169
S502	SWITCH, push button: mementary contact; normally closed; SPST, 15 amp. at 125, 250 V, or 460 VAC, 1/2 amp. at 125 VDC, 1/4 amp. at 250 VDC.	Interlock Switch	SW-169
S503	SWITCH, push button: momentary contact; normally closed: SPST, 15 amp. at 125, 250 V, or 460 VAC, 1/2 amp. at 125 VDC, 1/4 amp. at 250 VDC.	Interlock Switch	SW-169
S504	SWITCH, push button: momentary contact; normally closed: SPST, 15 amp. at 125, 250 V, or 460 VAC, 1/2 amp. at 125 VDC, 1/4 amp. at 250 VDC.	Interlock Switch	SW-169
T501	TRANSFORMER, power: 115/230 VAC; 50/60 cycles; terminal 5 and 7 2500 VDC at 600 MA. CT. insulated for 2500 volts; in accordance with MIL-T-27, GR. 1, CL. A, FAM. 02.	Hi-Voltage Power Transformer	TF-157
W501	CABLE ASSEMBLY: power; RTP to RTF interconnect; consists of 84 in. of various size and color SRIR cable; two cable clamps; and two connectors (P503 and P504)	RTP-RTF Interconnect Cable	CA-264
W502	CABLE ASSEMBLY: special purpose, branched; for comb. A, RTP to E501 interconnect; for comb. B, RTP to RTM and E501 interconnect; for comb. C, RTP to XFK and E501 interconnect; consists of various size, length, and color SRIR cable; various size and length PX and AN sleeving; eight terminal lugs; two cable clamps; and two connectors; (P501, P502).	E501, RTP, XFK Interconnect Cable	CA-265

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
W503	CABLE ASSEMBLY: HV; comb. A and C, RTF to Cab/Frame interconnect; comb. B, RTF to XFK interconnect; consists of 9 ft. of WI-131; AN sleeving; two AN cable clamps; and two connectors, (P505, P506).	RTF, XFK Cab/Frame Interconnect	CA-275
W504	CABLE ASSEMBLY: RF: TFR to XFK interconnect; consists of 90 in. of RG-59/U coaxial cable, two connectors (P507, P508); one adapter (UG-176/U); color coded red.	RTF-XFK Interconnect Cable	CA-288-1
W505	CABLE ASSEMBLY: RF; RTF to XFK interconnect; consists of 90 in. of RG-59/U coaxial cable; two connectors (P509, P510); one adpater (UG-176/U); color coded blue.	RTF-XFK Interconnect Cable	CA-288-2
W506	CABLE ASSEMBLY: HV; red; T501 to V606 plate; consists of 28 in. of WI-131 cable; one solderless terminal; and one plate cap (E503).	V606 Plate Lead	CA-294
W507	CABLE ASSEMBLY: HV; red; T501 to V607 plate; consists of 28 in. of WI-131 cable; one solderless terminal; and one plate cap (E504).	V607 Plate Lead	CA-294
	FANNING STRIP: 12 contacts; angle; end feed.	Cable Connections, to E501	TM-105-12-A-L
	CONNECTOR, plug, coaxial: HN type; 50 ohms, 5000 volts peak.	RF Output Plug	UG-59B/U
	CONNECTOR, plug: female; twist lock type; polarized; 3 contacts; 20 amps.	AC Power Plug	PL-134-N G
	CONNECTOR, plug: coaxial; UHF type; one contact; 500 VDC peak; mica insulation.	Drive Input Plug	PL-259A MICA
	CONNECTOR, plug: coaxial: UHF type; one contact; 500 VDC peak; mica insulation.	Drive Output Plug	PL-259A MICA

MODEL RTP, POWER SUPPLY
SYMBOL GROUP 601 through 699

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
C601	CAPACITOR, fixed: paper dielectric; 4 mfd, ±10%; 3000 wvdc; w/mtg. brackets.	H.V. B+ Filter Cap., T603	CN-109
C602	CAPACITOR, fixed: paper dielectric; 4 mfd, ±10%; 3000 wvdc; w/mtg. brackets.	H.V. B+ Filter Cap., T603	CN-109
C603	CAPACITOR, fixed: moulded plastic; 0.1 mfd, +40, -10%; 600 wvdc.	Arc Suppressor Cap., E602	CN-100-22
C604	CAPACITOR, fixed: paper dielectric; 4 mfd, +20, -10%; 600 wvdc.	B- Filter Cap., V601	CP40C2DF405V
C605	CAPACITOR, fixed: paper dielectric; 4 mfd, +20, -10%; 600 wvdc.	B- Filter Cap., V603	CP40C2DF405V
C606	CAPACITOR, fixed: paper dielectric; 4 mfd, +20, -10%; 600 wvdc.	B+ Filter Cap., V604	CP40C2DF405V
C607	CAPACITOR, fixed: paper dielectric; 4 mfd, +20, -10%; 600 wvdc.	B+ Filter Cap., V604	CP40C2DF405V
C608	CAPACITOR, fixed: paper dielectric; 4 mfd, +20, -10%; 600 wvdc.	B+ Filter Cap., V605	CP40C2DF405V
C609	CAPACITOR, fixed: paper dielectric; 4 mfd, +20, -10%; 600 wvdc.	B+ Filter Cap., V605	CP40C2DF405V
C610	CAPACITOR, fixed: paper dielectric; 4 mfd, ±10%; 3000 wvdc; w/mtg. brackets.	H.V. B+ Filter Cap., T603	CN-109
C611	Not Used.		
C612	Not Used.		
CB601	CIRCUIT BREAKER, over-load: toggle lever type; DPST; connection A to B 250 VAC, 16A; A to C 250 VAC, 32A; manual reset; armature trip release.	Line Voltage Breaker	SW-164
E601	BOARD, terminal: general purpose barrier type; 8 brass nickel plated 6-32 binding head machine screws; moulded phenolic.	P.A. Sg. Overload Relay Term.	TM-100-8
E602	BOARD, terminal: general purpose barrier type; 12 brass nickel plated 6-32 binding head machine screws; moulded phenolic.	Transmitter Plate Term.	TM-100-12
E603	BOARD, terminal: general purpose barrier type; 12 brass nickel plated 6-32 binding head machine screws; moulded phenolic.	P.A. Plate Overload Relay Term.	TM-100-12
F601	FUSE, cartridge: time-lag; 3 amp.	Oven Fuse	FU-102-003

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
F602	FUSE, cartridge: time-lag; 3 amp.	Low Voltage Supply Fuse	FU-102-003
F603	FUSE, cartridge: time-lag; 3 amp.	Mid-Voltage Supply Fuse	FU-102-003
I601	LAMP, incandescent: 6-8 v.; 0.250 amp; T-3-1/4 clear bulb.	Overload Indicator	BI-101-44
I602	LAMP, incandescent: 120 v. 3 watts; double contact bayonet base.	Final Plate Indicator	BI-102-3
I603	LAMP, incandescent: 120 v. 3 watts; double contact bayonet base.	Transmitter Plate Indicator	BI-102-3
I604	LAMP, incandescent: 120 v. 3 watts; double contact bayonet base.	Main Power Indicator	BI-102-3
J601	CONNECTOR, receptacle: AN pin type; 4 contacts; rated at 35 amps, 18 contacts rated at 20 amps; 200 V. DC, 150 V. AC (RMS); mtg. dim. 1.782'' diam. cut out with four 3/16'' holes on 1-9/16'' mtg. centers.	Power Input	AN3102A-28-11P
J602	CONNECTOR, receptacle: AN socket type; 4 contacts rated at 35 amps, 18 contacts rated at 20 amps; 200 V. DC, 150 V. AC (RMS); mtg. dim. 1.782'' diam cut out with four 3/16'' holes on 1-9/16'' mtg. centers.	Power Output	AN3102A-28-11S
K601	RELAY ASSEMBLY, solenoid: w/associated wiring connected; min. opr. amps. .015A, min. opr. voltages 115 V, DC contacts 115 V. AC non-inductive 10 amps.	P.A. Screen Overload	A-1269
K602	RELAY ASSEMBLY, solenoid: w/ associated wiring; min. opr. amps. .015A, min. opr. voltages 115V, DC contacts 115V, AC non-inductive 10 amps.	Transmitter Plate ON/OFF Relay	A-1270
K603	RELAY, thermostatic delay: 60 sec. ±12 sec. 115V, 2 amp, 220V, 1 amp; SPST; normally open; voltage breakdown contact to contact 1000V, heater contact 1500V; heater wattage 2.5 W; miniature 9 pin.	Time Delay Relay	RL-111-6N060T
K604	RELAY ASSEMBLY, solenoid: adjustable: w/associated wiring connected; 250-750 ma, reset coil 6.3V, AC; contacts insulated for.3000 V; points, pure silver.	P.A. Plate Overload	A-1272
L601	REACTOR, filter: 50 Hy; DC resistance approx. 800 ohms; 30 ma DC; insulated for 1500 V; in accordnace with MIL-T-27, GR. 1 CL. A FAM. 03.	Filter Choke, V603	TF-166

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
L602	REACTOR, filter: 10 Hy; DC resistance approx. 85 ohms; 200 ma DC; insulated for 1500 V; in accordance with MIL-T-27 GR. 1 CL. A FAM. 04.	Filter Choke V604	TF-144
L603	REACTOR, filter: 10 Hy; DC resistance approx. 85 ohms; 200 ma DC; insulated for 1500 V; in accordance with MIL-T-27 GR. 1 CL. A FAM. 04.	Filter Choke, V604	TF-144
L604	REACTOR, filter: 10 Hy; DC resistance approx. 85 ohms, 200 ma DC; insulated for 1500 V; in accordance with MIL-T-27 GR. 1 CL. A FAM. 04.	Filter Choke V605	TF-144
L605	REACTOR, filter: 10 Hy; DC resistance approx. 85 ohms, 200 ma DC; insulated for 1500 V; in accordance with MIL-T-27 GR. 1 CL. A FAM. 04.	Filter Choke V605	TF-144
L606	REACTOR, filter: 10 Hy; DC resistance less than 60 ohms, 560 ma DC; insulated for 4000 V; in accordance with MIL-T-27, GR. 1 CL. A FAM. 04.	H.V. Filter Choke, T603	TF-148
M601	METER, volts AC; 0-150; mtg. dim. one 2-13/16'' diam.hole with four 9/64'' diam. holes on 2-1/4'' mtg. centers.	Filament Line Meter	MR-108-150
P601	CONNECTOR, plug: AN socket type; 2 contacts rated at 35 amps; 500 V. DC, 275 V. AC, (RMS).	H.V. Output	AN3106B-18-16S
	CLAMP, cable: 5/8 in. diam. max. cable entry; includes washer and neoprene gasket.	Clamp for P601	AN3057-10
	SLEEVE, bushing: neoprene; 2 in. lg. x .438 in. O.D. x .312 in. I.D.	Bushing for P601	AN3420-6A
	SLEEVE, bushing: neoprene; 2 in. lg. x .625 in. O.D. x .438 in. I.D.	Bushing for P601	AN3420-10A
R601	RESISTOR, fixed: wire wound; 15,000 ohms, ±5%, 10 watts.	Voltage Divider E601	RW-109-36
R602	RESISTOR, fixed: wire wound; 15,000 ohms, ±5%, 10 watts.	Voltage Divider E601	RW-109-36
R603	RESISTOR, adjustable: wire wound; 600 ohms, ±5%, 10 watts.	Voltage Divider E601	RA108-601-10
R604	RESISTOR, variable: wire wound; 250 ohms, ±10%, 4 watts, linear taper.	P.A. Screen Overload Sensitivity Control, E601	RA106ASSA251A
R605	RESISTOR, adjustable: 250 ohms, 25 watts.	P.A. Plate Overload Res., E603	RA-108-250-25

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
R606	RESISTOR, fixed: wire wound; 3000 ohms, ±5%, 10 watts.	Voltage Drop Res., E601	RW-109-30
R607	Not Used.		
R608	RESISTOR, variable: wire wound; 2500 ohms, ±10%; 25 watts; linear taper; 7/8 in. lg. x 1/4 in. diam. shaft, slotted.	PA Grid Bias Adj.	RA75ASA252AK25
R609	RESISTOR, fixed: composition; 2400 ohms, ±5%, 2 watts.	P/O PA Grid Bias Adj.	RA42GF242J
R610	RESISTOR, fixed: wire wound; 6000 ohms, ±5%, 10 watts.	Voltage Divider, V601	RW-109-45
R611	RESISTOR, fixed: wire wound; 500 ohms, ±5%, 10 watts.	Peak Current Limiter	RW-109-19
R612	RESISTOR, fixed: wire wound; 50,000 ohms, ±5%, 5 watts.	Bleeder Res., V602	RW-109-43
R613	RESISTOR, fixed: wire wound; 50,000 ohms, ±5%, 5 watts.	Bleeder Res., V605	RW-109-43
R614	RESISTOR, fixed: wire wound; 60,000 ohms, ±5%, 200 watts.	H.V. Bleeder Res., T603	RW-116-603NB
R615	RESISTOR, fixed: wire wound; 60,000 ohms, ±5%, 200 watts.	H.V. Bleeder Res., T603	RW-116-603NB
S601	SWITCH, rotary: 3 sections, 6 position; insulation sect. 1 & 2 bakelite, sect. 3 ceramic.	Phone Tune CW, FS	SW-170
S602	SWITCH, push button: momentary contact; SPST, 1 amp at 250 V, 3 amps at 125 V.	Overload Reset	SW-168-SPST-2-NO-BR
S603	SWITCH; toggle: DPST, 250 V. at 20 amps, 1-1/2 horsepower 250 V.	Transmitter Plate Switch	ST-104
S604	SWITCH, toggle: DPST, 250 V. at 20 amps, 1-1/2 horsepower 250 V.	Final Plate Switch	ST-104
S605	SWITCH, rotary: 1 section, 7 position; insulation ceramic; contacts & wipers silver plated; 1/4'' drive shaft, 15/16'' lg., flatted 3/8''.	Filament Adjust. Switch	SW-167-7
T601	TRANSFORMER, power: 115/230 V. AC, 50/60 cycles; term. 12 & 16 500 V. DC, 13 & 15 270 V. DC term 14 CT; at 200 ma; term 10 & 11 5.0 V. AC at 2 amps; 8 & 9 6.3 V. AC at 1.2 amps; 5 & 6 6.3 V. AC at 3 amps CT. insulated for 3000 volts in accordance with MIL-T-27 GR. 1 CL. A FAM. 03.	Low Voltage Power Transformer	TF-161

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
T602	TRANSFORMER, power: 115/230 V. AC, 50/60 cycles; term. 12 & 16 500 V. DC, 13 & 15 250 V. DC, term. 14 CT; at 200 ma; term. 10 & 11 5.0 V. AC at 2 amps; 8 & 9 6.3 V. AC at 1.2 amps; 5 & 6 6.3 V. AC at 3 amps. CT. insulated for 3000 volts in accordance with MIL-T-27 GR. 1 CL. A FAM. 03.	Mid-Voltage Power Transformer	TF-161
T603	TRANSFORMER, power: filament; 115/230 V. AC; 50/60 cycles; 5 V. AC at 15A CT. insulated for 7000 V. in accordance with MIL-T-27 GR. 1 CL. A FAM. 01.	Filament Transformer	TF-147
T604	TRANSFORMER, line adjust: 115/230 V. AC, 50/60 cycles; output 100 to 130 in seven steps of 5 V. ea; any one tap .3 amps to load in accordance with MIL-T-27 GR. 1 CL. A FAM. 01.	Voltage Adjust Transformer	TF-164
V601	TUBE, electron: voltage regulator; 7 pin miniature.	Voltage Regulator	OB2
V602	TUBE, electron: voltage regulator; 7 pin miniature.	Voltage Regulator	OB2
V603	TUBE, electron: full wave rect., 7 pin miniature.	Negative Voltage Rectifier	6X4
V604	TUBE, electron: full wave rect., octal base.	Low Voltage Rectifier	5R4GY
V605	TUBE, electron: full wave rect., octal base.	Mid-Voltage Rectifier	5R4GY
V606	TUBE, electron: mercury vapor half wave rectifier; A4-29 base.	High Voltage Rectifier	872A
V607	TUBE, electron: mercury vapor half wave rectifier; A4-29 base.	High Voltage Rectifier	872A
W601	CABLE ASSEMBLY: jumper; black; C601 to C610; consists of 4-5/8 in. of WI-126-2 coaxial cable and two terminal lugs.	Filter Jumper	CA-311-1
W602	CABLE ASSEMBLY: jumper; red; C601 to C610; consists of 4-5/8 in. of WI-126-1 coaxial cable and two terminal lugs.	Filter Jumper	CA-311-2
W603	CABLE ASSEMBLY: jumper; black; C602 to C610; consists of 7-7/8 in. of WI-126-2 coaxial cable and two terminal lugs.	Filter Jumper	CA-311-3
W604	CABLE ASSEMBLY: jumper; red; C601 to C606; consists of 4 3/8 in. of WI-126-1 coaxial cable and two terminal lugs.	Filter Jumper	CA-311-4

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
W605	CABLE ASSEMBLY: jumper; red; T603 to L606; consists of 11-3/4 in. of WI-126-1 coaxial cable and two terminal lugs.	Filter Jumper	CA-311-5
W606	CABLE ASSEMBLY: jumper; red; C602 to L606; consists of 4 in. of WI-126-1 coaxial cable and two terminal lugs.	Filter Jumper	CA-311-6
W607	CABLE ASSEMBLY: jumper; red; C602 to R615; consists of 5-5/16 in. of WI-126-1 coaxial cable and one terminal lug.	Filter Jumper	CA-311-7
XI601	SOCKET, lens: red; for min. bayonet base, using T-3-1/4 bulb.	I601 Socket	TS-106-1
XI602	SOCKET, lens: red; for bayonet base using S6 bulb.	I602 Socket	TS-124-1
XI603	SOCKET, lens: red; for bayonet base using S6 bulb.	I603 Socket	TS-124-1
XI604	SOCKET, lens: green; for bayonet base using S6 bulb.	I604 Socket	TS-124-2
XK603	SOCKET, tube: 9 pin miniature.	K603 Socket	TS103P01
XV601	SOCKET, tube: 7 pin. min.	V601 Socket	TS102P01
XV602	SOCKET, tube: 7 pin min.	V602 Socket	TS102P01
XV603	SOCKET, tube: 7 pin min.	V603 Socket	TS102P01
XV604	SOCKET, tube: octal; one piece saddle mtg. w/4 tinned ground lugs.	V604 Socket	TS101P01
XV605	SOCKET, tube: octal; one piece saddle mtg. w/4 tinned ground lugs.	V605 Socket	TS101P01
XV606	SOCKET, tube: jumbo twist lock; 4 pin base.	V606 Socket	TS-123-211-1
XV607	SOCKET, tube: jumbo twist lock; 4 pin base.	V607 Socket	TS-123-211-1

MODEL RTM, MODULATOR
SYMBOL GROUP 701 through 799

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
C701	CAPACITOR, fixed: moulded plastic; .02 mmfd, +40, -20%; 600 wvdc.	Coupling Cap., V702	CN-100-17
C702	CAPACITOR, fixed: moulded plastic; .02 mmfd, +40, -20%; 600 wvdc.	Coupling Cap., V703	CN-100-17
C703	CAPACITOR, fixed: paper dielectric; 4 mfd, +20, -10%; 600 wvdc.	DC Filter Cap., V707	CP40C2DF405V
C704	CAPACITOR, fixed: paper dielectric; 4 mfd, +20, -10%; 600 wvdc.	DC Filter Cap., V707	CP40C2DF405V
E701	CLIP, electrical; white ceramic; phosphor bronze spring clip to fit 9/16 in. dia. tube cap.	V704 Grid Clip	HB-102-1
E702	CLIP, electrical; white ceramic; phosphor bronze spring clip to fit 9/16 in. dia. tube cap.	V705 Grid Clip	HB-102-1
E703	CLIP, electrical: white ceramic; phosphor bronze spring clip to fit 9/16 in. dia. tube cap.	V704 Plate Clip	HB-102-1
E704	CLIP, electrical: white ceramic; phosphor bronze spring clip to fit 9/16 in. dia. tube cap.	V705 Plate Clip	HB-102-1
E705	INSULATOR, pillar: round; white glazed steatite; 3/4 in. lg. x 1/2 in. dia., tapped 8-32 x 1/4 in. dp each end.	Spark Gap Stand-off	NS5W0206
E706	INSULATOR, pillar: round; white glazed steatite; 3/4 in. lg. x 1/2 in. dia., tapped 8-32 x 1/4 in. dp each end.	Spark Gap Stand-off	NS5W0206
F701	FUSE, cartridge: time-lag; 3 amp.	AC Supply Fuse	FU-102-003
I701	LAMP, incandescent: 6-8V; 0.250 amp; bulb T-3-1/4 clear.	Power Indicator	BI-101-44
J701	CONNECTOR, receptacle: AN pin type; 16 contacts; 20 amps, 200 VDC, 150 VAC (rms); mtg. dim. 1.532 in. diam. cut out, w/four 9/64 in. holes on 1-3/8 in. mtg. centers.	Modulator Input	AN3102A-24-5P
J702	CONNECTOR, receptacle: AN socket type; one contact; 35 amps, 3000 VDC, 2100 VAC (rms); mtg. dim. 1.156 in. diam. cut out, w/four 1/8 in. holes in 1-1/16 in mtg. centers.	Modulator Output	AN3102A-18-16S

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
J703	CONNECTOR, receptacle: AN pin type; one contact; 35 amps, 3000 VDC, 2100 VAC (rms); mtg. dim. 1.156 in. diam. cut out w/four 1/8 in. holes on 1-1/16 in. mtg. centers.	H.V. Input	AN3102A-18-16P
K701	RELAY, switch: DPDT; 10 amp, non-inductive, coil 150 VDC, Coil Res. approx. 10,000 ohms.	Phone - CW Switch	RL-115
L701	REACTOR, filter: 10 HY; DC resistance approx. 85 ohms; 200 ma DC insulated for 1500 V; in a/w MIL-T-27 GR. 1-CL. A - FAM. 04.	DC Filter Choke, J701	TF-144
L702	REACTOR, filter: 10 HY; DC resistance approx. 85 ohms; 200 ma DC insulated for 1500 V; in a/w MIL-T-27 GR. 1-CL. A - FAM. 04.	Filter Choke, V707	TF-144
L703	REACTOR, filter: 10 HY; DC resistance approx. 85 ohms; 200 ma DC insulated for 1500 V; in a/w MIL-T-27 GR. 1-CL. A- FAM. 04.	Filter Choke, V707	TF-144
M701	METER, milliamp: 0-500 milliamps DC; mtg. dim. one 2-13/16 in. diam hole w/four 9/64 in. diam. hole on 2 1/4 in. mtg. centers.	Modulator Plate	MR-110-500S
R701	RESISTOR, variable: dual; composition, 50,000 ohms linear, ±10%, 2 watts.	Input Level Control Res., V701	RV104ATRD503A
R702	RESISTOR, fixed: composition; 560 ohms, ±10%, 1/2 watt.	Cathode Bias Res., V701	RC20GF561K
R703	RESISTOR, fixed: composition; 22,000 ohms, ±10%, 1/2 watt.	Part of Grid Input Impedance T702	RC20GF223K
R704	RESISTOR, fixed: composition; 22,000 ohms, ±10%; 1/2 watt.	Part of Grid Input Impedance T702	RC20GF223K
R705	RESISTOR, fixed: wire wound; 100 ohms, ±5%, 10 watts.	Cathode Bias Resistor, V703	RW-109-9
R706	RESISTOR, fixed: composition; 82,000 ohms, ±10%, 1/2 watt.	Feedback Resistor, T703	RC20GF823K
R707	RESISTOR, fixed: composition; 82,000 ohms, ±10%, 1/2 watt.	Feedback Resistor, T702	RC20GF823K
R708	RESISTOR, fixed: wire wound; 7500 ohms, ±5%, 10 watts.	Relay Dropping Res., V706	RW-109-33
R709	RESISTOR, fixed: wire wound; 30,000 ohms, ±5%, 5 watts.	Voltage Reg. Dropping Res., V706	RW-109-39

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
R710	RESISTOR, fixed: composition; 180 ohms, ±10%, 2 watts.	Meter Shunt Res., M701	RC42GF181K
R711	RESISTOR, fixed: wire wound; 5000 ohms, ±5%; 10 watts.	Suppressor Res., L701	RW-109-32
R712	RESISTOR, fixed: wire wound; 25,000 ohms, ±10%; 20 watts.	Bleeder Res., L701	RW-110-36
T701	TRANSFORMER, audio: pri 600 ohms center tapped secondary 50,000 ohms center tapped; response 50 cps to 15,000 cps ±2 db; insulated for 1500 V. in a/w MIL-T-27 GR. 1-CL. A - FAM. 11.	Input Transformer	TF-142
T702	TRANSFORMER, audio: interstage; pri 30,000 ohms center tapped. Secondary-two windings 120,000 ohms total; response-50 to 15000 cps, ±db; insulated for 1500 V. in a/w MIL-T-27 GR. 1-CL. A- FAM. 15.	Interstage Transformer	TF-141
T703	TRANSFORMER, audio: driver; pri 5000 ohms center tapped, 150 ma DC balanced; response 50 to 1500 cps, ±2 db; non-power level 10 watts output; off 95% or better; insulated for 1500 V. in a/w MIL-T-27 GR. 1-CL. A-FAM. 12.	Interstage Transformer	TF-140
T704	TRANSFORMER, audio: modulation; pri. 22,000 ohms center tapped; working volts approx. 1400 V (rms) (each side of CT) superimposed on 2500 VDC, 250 ma DC bal; sec. 10,000 ohms, approx. 1900 V. (rms) superimposed on 2500 VDC, 250 ma DC unbal; overall power level 350 watts off 95% or better; response 100 cps to 10 Kcs ±2 db; insulated for 8 KV. in a/w MIL-T-27 GR. 1-CL. A-FAM. 14.	Modulation Transformer	TF-139
T705	TRANSFORMER, power: 115/230 VAC; 50/60 cycle single phase; secondary 270 VDC at 200 ma/500 VDC at 200 ma 5.0 VDC at 2.0 amps, 6.3 VDC at 1.3 amps. 6.3 VDC at 3.0 amps C.T. insulation test 3000 volts. In accordance with MIL-T-27 GR. 1-CL. A-FAM. 01.	Power Supply Transformer	TF-161
T706	TRANSFORMER, filament: 115/230 VAC, 50/60 cycle; secondary 10V at 10 amps C.T. C.T. insulated for 1500 V; in a/w MIL-T-27 GR. 1-CL. A -FAM. 01.	Filament Transformer	TF-145
V701	TUBE, electron: duo diode; 12AT7, 9 pin miniature.	Audio Ampl.	12AT7
V702	TUBE, electron: beam power amplifier; base.	Modulator Driver	6L6

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
V703	TUBE, electron: beam power amplifier; base.	Modulator Driver	6L6
V704	TUBE, electron: triode; jumbo 4 large pin base w/anode and grid caps.	Modulator	810
V705	TUBE, electron: triode; jumbo 4 large pin base w/anode and grid caps.	Modulator	810
V706	TUBE, electron: voltage regulator; octal base.	Voltage Regulator	OA3
V707	TUBE, electron: full wave rectifier; octal base.	Rectifier	5R4GY
W701	CABLE ASSEMBLY: HV; red; V704 plate cap to pin 1 of T704; consists of 26 in. of WI-126-1 cable; and one plate clip (E703).	V704 Plate Lead	CA-285-1
W702	CABLE ASSEMBLY: HV; red; V705 plate cap to pin 3 of T704; consists of 21 in. of WI-126-1 cable; and one plate clip (E704).	V705 Plate Lead	CA-285-2
W703	CABLE ASSEMBLY: HV; red; T703 to pin 5 of T704; consists of 15 in. of WI-126-1 cable.	HV Cable	CA-285-3
W704	CABLE ASSEMBLY: HV; black; J702 to pin 4 of T704; consists of 12 in. of WI-126-2 cable.	HV Cable	CA-285-4
W705	CABLE ASSEMBLY: HV; red; K701 to pin 5 of T704; consists of 13 in. of WI-126-1 cable; one in. of PX tubing and one terminal lug.	HV Cable	CA-285-5
W706	CABLE ASSEMBLY: HV; red; K701 to pin 2 of T704; consists of 8 1/2 in. of WI-126-1 cable; one in. of PX tubing; and one terminal lug.	HV Cable	CA-285-6
W707	CABLE ASSEMBLY: HV; black; K701 to pin 4 of T704; consists of 15 1/2 in. of WI-126-2 cable; one in. of PX tubing; and one terminal lug.	HV Cable	CA-285-7
W708	CABLE ASSEMBLY: HV; black; V704 grid to pin 4 of T703; consists of 8 1/4 in. of WI-126-2 cable; and one plate clip (E701).	V704 Grid Lead	CA-285-8
W709	CABLE ASSEMBLY: HV; black; V705 grid to pin 4 of T703; consists of 8 3/4 in. of WI-126-2 cable; and one plate clip (E702)	V705 Grid Lead	CA-285-9
XI701	SOCKET, indicator: w/red frosted lens; for miniature bayonet base T-3-1/4 bulb.	Socket for I701	TS-106-1
XV701	SOCKET, tube: miniature; 9 pin.	Socket for V701	TS103P01
XV702	SOCKET, tube: octal; one piece saddle mtg. w/4 tinned ground lugs.	Socket for V702	TS101P01

SYM	DESCRIPTION	FUNCTION	TMC PART NO.
XV703	SOCKET, tube: octal; one piece saddle mtg. w/4 tinned ground lugs.	Socket for X703	TS101P01
XV704	SOCKET, tube: jumbo twist lock; 4 pin base.	Socket for V704	TS-123-211-1
XV705	SOCKET, tube: jumbo twist lock; 4 pin base.	Socket for V705	TS-123-211-1
XV706	SOCKET, tube: octal; one piece saddle mtg. w/4 tinned ground lugs.	Socket for V706	TS101P01
XV707	SOCKET, tube: octal; one piece saddle mtg. w/4 tinned ground lugs.	Socket for V707	TS101P01

PARTS LIST

REMOTE CONTROL AMPLIFIER, MODEL RTC

SYMBOL GROUP 801 through 899

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
C801	CAPACITOR, fixed: mica; 270 mmfd., ±10%, 500 wvdc; char. B.	P/O R.F. Filter, V801	CM20B271K
C802	CAPACITOR, fixed: mica; 270 mmfd., ±10%, 500 wvdc; char. B.	P/O R.F. Filter, V801	CM20B271K
C803 A,B	CAPACITOR, fixed: dry electrolytic; polorized; plug in; 20 mfd., 450 wvdc; char. E.	Cathode Bypass Cap., V801	CE52E200R
C804	CAPACITOR, fixed: ceramic; .01 mfd., +80 -20%, 500 wvdc; disc type.	Coupling Cap., V801	CC-100-16
C805	CAPACITOR, fixed: mica; .01 mfd., ±5%, 300 wvdc; char. C.	Coupling Cap., V801	CM35C103J
C806	CAPACITOR, fixed: mica; 1000 mfd., ±5%, 500 wvdc; char. B.	Coupling Cap., V802	CM20B102J
C807	CAPACITOR, fixed: mica; .01 mfd., ±5%. 300 wvdc; char. C.	P/O Low Pass Filter, V802	CM35C103J
C808	CAPACITOR, fixed: moulded plastic; .02 mfd, +40 -20%, 600 wvdc.	P/O Oscillator Plate Tank, V802	CN-100-17
C809	CAPACITOR, fixed: moulded plastic; .05 mfd, +40 -20%, 400 wvdc.	P/O Oscillator Plate Tank, V802	CN-100-3
C810	CAPACITOR, fixed: mylar dielectric; .2 mfd., ±10%, 400 wvdc.	P/O Oscillator Plate Tank, V802	CN104E2003K
C811	CAPACITOR, fixed: moulded plastic; .02 mfd, +40 -20%, 600 wvdc.	P/O Oscillator Plate Tank, V802	CN-100-17
C812	CAPACITOR, fixed: moulded plastic; .05 mfd, +40 -20%, 400 wvdc.	P/O Oscillator Plate Tank, V802	CN-100-3
C813	CAPACITOR, fixed: mylar dielectric; .2 mfd, ±10%, 400 wvdc.	P/O Oscillator Plate Tank, V802	CN104E2003K
C814	CAPACITOR, fixed: mica; .01 mfd, ±5%, 300 wvdc; char. C.	P/O Low Pass Filter, V802	CM35C103J
C815	CAPACITOR, fixed: mica; .01 mfd, ±5%, 300 wvdc; char. C.	Feedback Cap., V802	CM35C103J
C816	CAPACITOR, fixed: moulded plastic; .1 mfd, +40 -10%, 400 wvdc.	Coupling Cap., V803A	CN-100-4
C817	CAPACITOR, fixed: mica; .01 mfd, ±5%, 300 wvdc; char. C.	Coupling Cap., V803A	CM35C103J

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
C818	CAPACITOR, fixed: mica; .01 mfd, ±5%, 300 wvdc; char. C.	Coupling Cap., V803A	CM35C103J
C819	Not Used.		
C820	Not Used.		
C821	CAPACITOR, fixed: mica; .01 mfd, ±5%, 300 wvdc; char. C.	Meter Bypass Cap., M801	CM35C103J
C822	CAPACITOR, fixed: moulded plastic; .1 mfd, +40 -10%, 400 wvdc.	Meter Coupling Capacitor	CN-100-4
C823	CAPACITOR, fixed: mica; .01 mfd, ±5%, 300 wvdc; char. C.	Line Bypass Capacitor, V805	CM35C103J
C824	CAPACITOR, fixed: mica; .01 mfd, ±5%, 300 wvdc; char. C.	Line Bypass Capacitor, V805	CM35C103J
C825 A,B	CAPACITOR, fixed: dry electrolytic; polarized; plug in; 20 mfd, 450 wvdc; char. E.	Filter Cap., V805	CE52E200R
C826 A,B	CAPACITOR, fixed: dry electrolytic; polarized; plug in; 20 mfd, 450 wvdc; char. E.	Filter Cap., V805	CE52E200R
C827	Not Used.		
C828	CAPACITOR, fixed: paper; .5 mfd, ±10%, 600 wvdc; oil filled, impregnated, hermetically sealed metal case.	Filter Cap., V805	CP53B1EF504K
C829	CAPACITOR, fixed: mica; .01 mfd, ±5%, 300 wvdc; char. C.	RF Bypass Cap., CR801	CM35C103J
C830	Not Used.		
C831	Not Used.		
C832	CAPACITOR, fixed: ceramic; 1000 mmfd, ±200 mmfd, 500 wvdc; disc type.	R.F. Bypass Cap., E801	CC-100-9
C833	CAPACITOR, fixed: ceramic; 1000 mmfd, ±200 mmfd, 500 wvdc; disc type.	R.F. Bypass Cap., E801	CC-100-9
C834	CAPACITOR, fixed: ceramic; 1000 mmfd, ±200 mmfd, 500 wvdc; disc type.	R.F. Bypass Cap., E801	CC-100-9
C835	CAPACITOR, fixed: ceramic; 1000 mmfd, ±200 mmfd, 500 wvdc; disc type.	R.F. Bypass Cap., E801	CC-100-9
C836	CAPACITOR, fixed: ceramic; 1000 mmfd, ±200 mmfd, 500 wvdc; disc type.	R.F. Bypass Cap., E801	CC-100-9
C837	CAPACITOR, fixed: ceramic; 1000 mmfd, ±200 mmfd, 500 wvdc; disc type.	R.F. Bypass Cap., E801	CC-100-9

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
C838	CAPACITOR, fixed: ceramic; 1000 mmfd, ±200 mmfd, 500 wvdc; disc type.	R.F. Bypass Cap., E801	CC-100-9
C839	CAPACITOR, fixed: ceramic; 1000 mmfd, ±200 mmfd, 500 wvdc; disc type.	R.F. Bypass Cap., E801	CC-100-9
CR801	CRYSTAL UNIT, rectifying; germanium.	Meter Rectifier	IN-34
E801	BOARD, terminal: barrier type; fourteen 6-32 x 1/4 in. binding head machine screws.	Output Terminal Strip	TM-100-14
F801	FUSE, cartridge: 3 amp.	Input Power Fuse	FU-100-3
I801	LAMP, incandescent: 6-8V; 0.250 amp; bulb T-3-1/4 clear.	Power Indicator	BI-101-44
J801	CONNECTOR, receptacle: female; three contacts; mtg. dim. 27/32 in. dia. cut-out.	Mike Input Connector	JJ-133-3
J802	JACK, open circuit: telephone.	Keying Input Jack	JJ-034
J803	JACK, open circuit: telephone.	Phone Output Jack	JJ-034
J804	CONNECTOR, receptacle: male; recessed; locking type; 2 contacts; 10 amps at 250 volts; 15 amps at 125 volts.	AC Power Input Connector	JJ-100
K801	RELAY, stud mounted: Break-Make type; D.C. contacts; 5 amps, 115 volts; non-inductive.	Plate Power Relay	RL-116-DC-2C-120
L801	CHOKE, RF: 765 microhenries, ±20%; 100 ma. max. current.	P/O R.F. Filter, V801	CL-100-5
L802	CHOKE, RF: 820 millihenries, ±2%; Q=55, ±10%; D.C. resistance 70-80 ohms.	P/O Oscillator Plate Tank & Low Pass Filter, V802	CL-121
L803	REACTOR, filter: 50 henries; D.C. resistance approx. 800 ohms; 30 ma D.C.; insulated for 1500 V in accordance with MIL-T-27, GR.1, CL. A, FAM.03.	P.S. Filter Choke, V805	TF-166
L804	REACTOR, filter: 50 henries; D.C. resistance approx. 800 ohms; 30 ma D.C.; insulated for 1500 V in accordance with MIL-T-27, GR.1, CL.A, FAM.03.	P.S. Filter Choke, V805	TF-166
M801	METER, microamp: 0-50 microamps D.C.; mtg. dim. one 2-3/4 in. dia. hole w/four 1/8 in. dia. holes on 2-1/4 in. mtg. centers.	Output Level Meter	MR-111-27-50
P801	CONNECTOR, plug: male; three contacts.	Mike Input Plug	PL-132-3

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
R801	RESISTOR, fixed: composition; 470,000 ohms, ±10%, 1/2 watt.	Grid Res., V801	RC20GF474K
R802	RESISTOR, fixed: composition; 1000 ohms, ±10%, 1/2 watt.	Cathode Res., V801	RC20GF102K
R803	RESISTOR, fixed: composition; 100,000 ohms, ±10%, 1/2 watt.	Plate Res., V801	RC20GF104K
R804	RESISTOR, fixed: composition; 100,000 ohms, ±10%, 1/2 watt.	Plate Res., V801	RC20GF104K
R805	RESISTOR, fixed: composition; 3300 ohms, ±10%, 1/2 watt.	Cathode Res., V801	RC20GF332K
R806	RESISTOR, fixed: composition; 470,000 ohms, ±10%, 1/2 watt.	Grid Res., V801	RC20GF474K
R807	RESISTOR, variable: composition; 500,000 ohms, linear, ±20%, 2 watts.	Clip Control Res., V802	RV4ATRD504B
R808	RESISTOR, fixed: composition; 5600 ohms, ±10%, 1/2 watt.	Cathode Res., V802	RC20GF562K
R809	RESISTOR, fixed: composition; 6800 ohms, ±10%, 1/2 watt.	P/O Plate Volt. Div., V802	RC20GF682K
R810	RESISTOR, fixed: composition; 82,000 ohms, ±10%, 1 watt.	Plate Res., V802	RC30GF823K
R811	RESISTOR, fixed: composition; 270 ohms, ±10%, 1/2 watt.	Cathode Res., V802	RC20GF271K
R812	RESISTOR, fixed: composition; 220,000 ohms, ±10%, 1/2 watt.	Volt. Limiting Res., V801	RC20GF224K
R813	RESISTOR, fixed: composition; 470,000 ohms, ±10%, 1/2 watt.	Grid Res., V802	RC20GF474K
R814	RESISTOR, fixed: composition; 6800 ohms, ±10%, 1/2 watt.	P/O Low Pass Filter, V802	RC20GF682K
R815	RESISTOR, fixed: composition; 33,000 ohms, ±5%, 1/2 watt.	Volt. Limiting Res., V802	RC20GF333J
R816	RESISTOR, fixed: composition; 33,000 ohms, ±5%, 1/2 watt.	Volt. Limiting Res., V802	RC20GF333J
R817	RESISTOR, fixed: composition; 47,000 ohms, ±10%, 1/2 watt.	Volt. Limiting Res., V802	RC20GF473K
R818	RESISTOR, fixed: composition; 180,000 ohms, ±10%, 1/2 watt.	Volt. Limiting Res., V802	RC20GF184K
R819	RESISTOR, fixed: composition; 15,000 ohms, ±10%, 1/2 watt.	Volt. Limiting Res., V802	RC20GF153K

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
R820	RESISTOR, variable: composition; 50,000 ohms, linear, ±20%, 2 watts.	Gain Control Res., V803	RV4ATRD503B
R821	RESISTOR, fixed: composition; 47,000 ohms, ±10%, 1/2 watt.	Plate Res., V803	RC20GF473K
R822	RESISTOR, fixed: composition; 47,000 ohms, ±10%, 1/2 watt.	Cathode Res., V803	RC20GF473K
R823	RESISTOR, fixed: composition; 1 megohm, ±10%, 1/2 watt.	Grid Res., V804	RC20GF105K
R824	RESISTOR, fixed: composition; 1 megohm, ±10%, 1/2 watt.	Grid Res., V804	RC20GF105K
R825	RESISTOR, fixed: composition; 1200 ohms, ±10%, 1 watt.	Cathode Res., V803	RC30GF122K
R826	RESISTOR, fixed: composition; 470,000 ohms, ±10%, 1/2 watt.	Grid Res., V803	RC20GF474K
R827	RESISTOR, fixed: composition; 3900 ohms, ±10%, 2 watts.	P/O Filter, V805	RC42GF392K
R828	RESISTOR, variable: composition; 500 ohms, linear, ±20%, 2 watts.	Balance Control Res., V804	RV4ATRD501B
R829	RESISTOR, fixed: composition; 560 ohms, ±10%, 1/2 watt.	Cathode Res., V803	RC20GF561K
R830	RESISTOR, fixed: composition; 100,000 ohms, ±10%, 1/2 watt.	Volt. Limiting Res., J801	RC20GF104K
R831	RESISTOR, fixed: wire wound; 15,000 ohms, 20 ma; 10 watts.	Current Limiting Res., K801	RW-109-36
R832	RESISTOR, fixed: composition; 39,000 ohms, ±5%, 1/2 watt.	Rectifier Load Res., CR801	RC20GF393J
R833	RESISTOR, fixed: composition; 150,000 ohms, ±10%, 1/2 watt.	P/O Volt. Div. E801	RC20GF154K
R834	RESISTOR, fixed: composition; 470,000 ohms, ±10%, 1/2 watt.	P/O Volt. Div., E801	RC20GF474K
R835	RESISTOR, fixed: composition; 10,000 ohms, ±10%, 2 watts.	Plate Res., V803	RC42GF103K
R836	RESISTOR, fixed: composition; 220,000 ohms, ±10%, 2 watts.	P/O Filter, V805	RC42GF224K
R837	RESISTOR, fixed: composition; 470,000 ohms, ±10%, 1/2 watt.	Grid Res., V804	RC20GF474K
S801	SWITCH, toggle: DPST, 1 amp, 250 V.	Operate, Standby Switch	ST22K

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
S802	SWITCH, rotary: 3 section; 5 positions; insulation bakelite; contacts and wipers silver plated; 1/4 in. drive shaft, 7/8 in. long.	Function Switch	SW-177
S803	SWITCH, toggle: DPST, 1 amp,.250V.	ON/OFF Switch	ST22K
T801	TRANSFORMER, audio: primary, 30,000 ohms impedance split; secondary, 50/200 ohms, 125/500 ohms impedance; ±2 db response, 30-20,000 cps.	Plate Output Transformer V804	TF-154
T802	TRANSFORMER, power: primary 110/220 volt, 50/60 cycle, single phase; sec. No. 1 = 600V., .070 A., center tapped; sec. No. 2 = 6.3 V, 3A., center tapped; sec. No. 3 = 5 V., 2 A., sec. No. 4 = 6.3V., 1.2 A; in accordance with MIL-T-27, GR. 1, CL.A, FAM.03.	Power Input Transformer, V805	TF-106
V801	TUBE, electron: High-Mu duo-triode; 9 pin miniature.	Input Amplifier	12AX7
V802	TUBE, electron: duo-triode; 9 pin miniature.	Limiter Oscillator	12AT7
V803	TUBE, electron: medium-Mu duo-triode; 9 pin miniature.	Inverter, Keyer	12AU7
V804	TUBE, electron: duo-triode; 9 pin miniature.	Output Amplifier	12AT7
V805	TUBE, electron: full-wave rectifier; 8 pin octal.	Full Wave Rectifier	5Y3G
W801	CABLE, power: consists of one moulded non-polarized male plug; six feet of 16/30 SJ cable; and one phenolic twist lock connector, female. (PL-100)	Power Cable	CA-103
W802	CABLE ASSEMBLY, electrical: RTC-GPT-750 interconnect; consists of two fanning strips, TM-105-12-AR, and TM-105-12-AL; one 6 conductor cable, 12 ft. lg. and associated hardware. (Supplied only on customers request)	Remote Control Cable	CA-274-12
XC803	SOCKET, octal: one piece saddle mtg. w/4 tinned ground lugs.	C803 Socket	TS-101-P01
XC825	SOCKET, octal: one piece saddle mtg. w/4 tinned ground lugs.	C825 Socket	TS-101-P01
XC826	SOCKET, octal: one piece saddle mtg. w/4 tinned ground lugs.	C826 Socket	TS-101-P01
XF801	HOLDER, fuse: stationary end terminal.	F801 Holder	FH-100-2

SYM.	DESCRIPTION	FUNCTION	TMC PART NO.
XI801	SOCKET, lens: red; for miniature bayonet base, using T-3-1/4 bulb.	I801 Socket	TS-106-1
XV801	SOCKET, tube: 9 pin miniature.	V801 Socket	TS-103-P01
XV802	SOCKET, tube: 9 pin miniature.	V802 Socket	TS-103-P01
XV803	SOCKET, tube: 9 pin miniature.	V803 Socket	TS-103-P01
XV804	SOCKET, tube: 9 pin miniature.	V804 Socket	TS-103-P01
XV805	SOCKET, tube: octal; one piece saddle mtg. w/4 tinned ground lugs.	V805 Socket	TS-101-P01

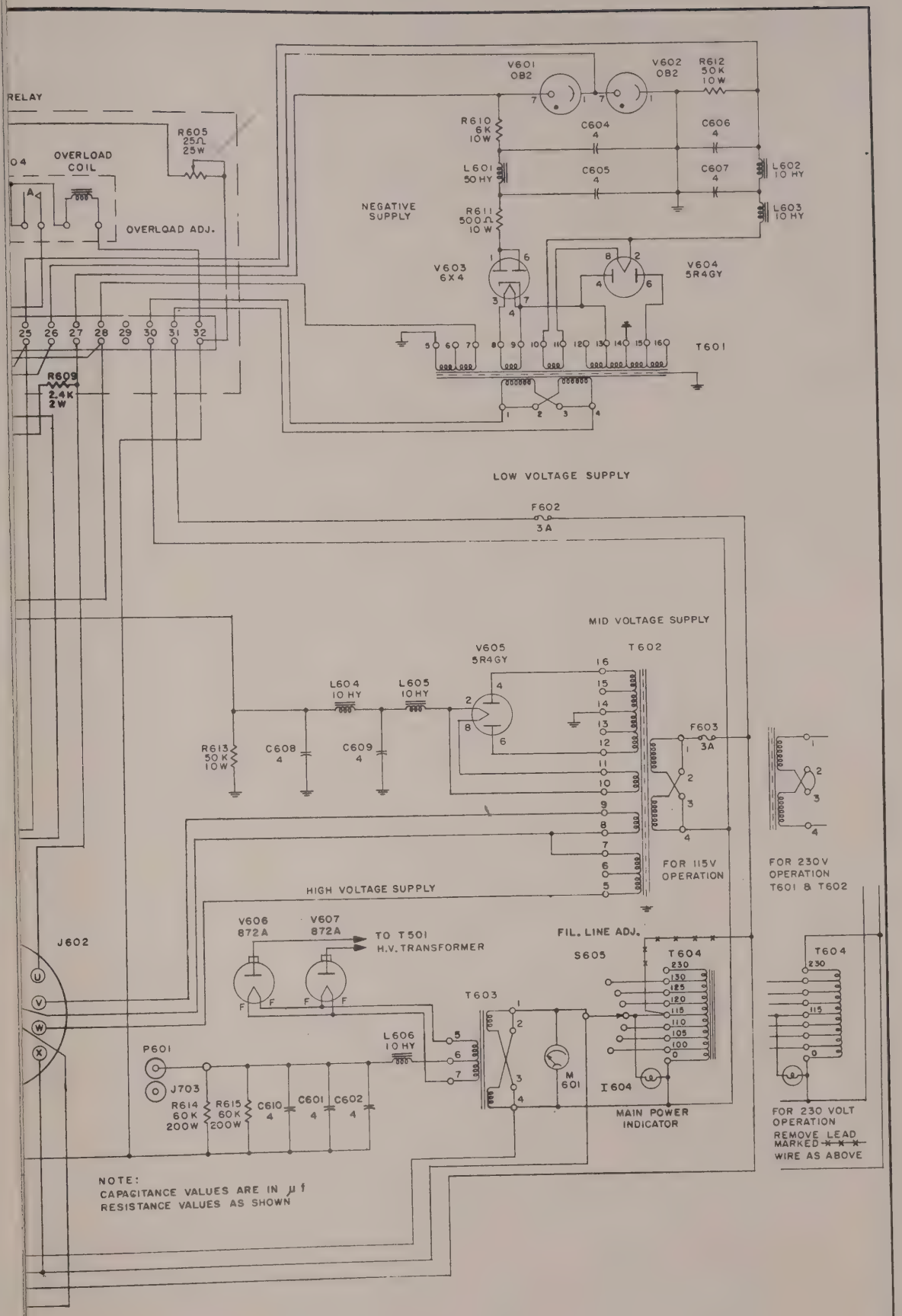
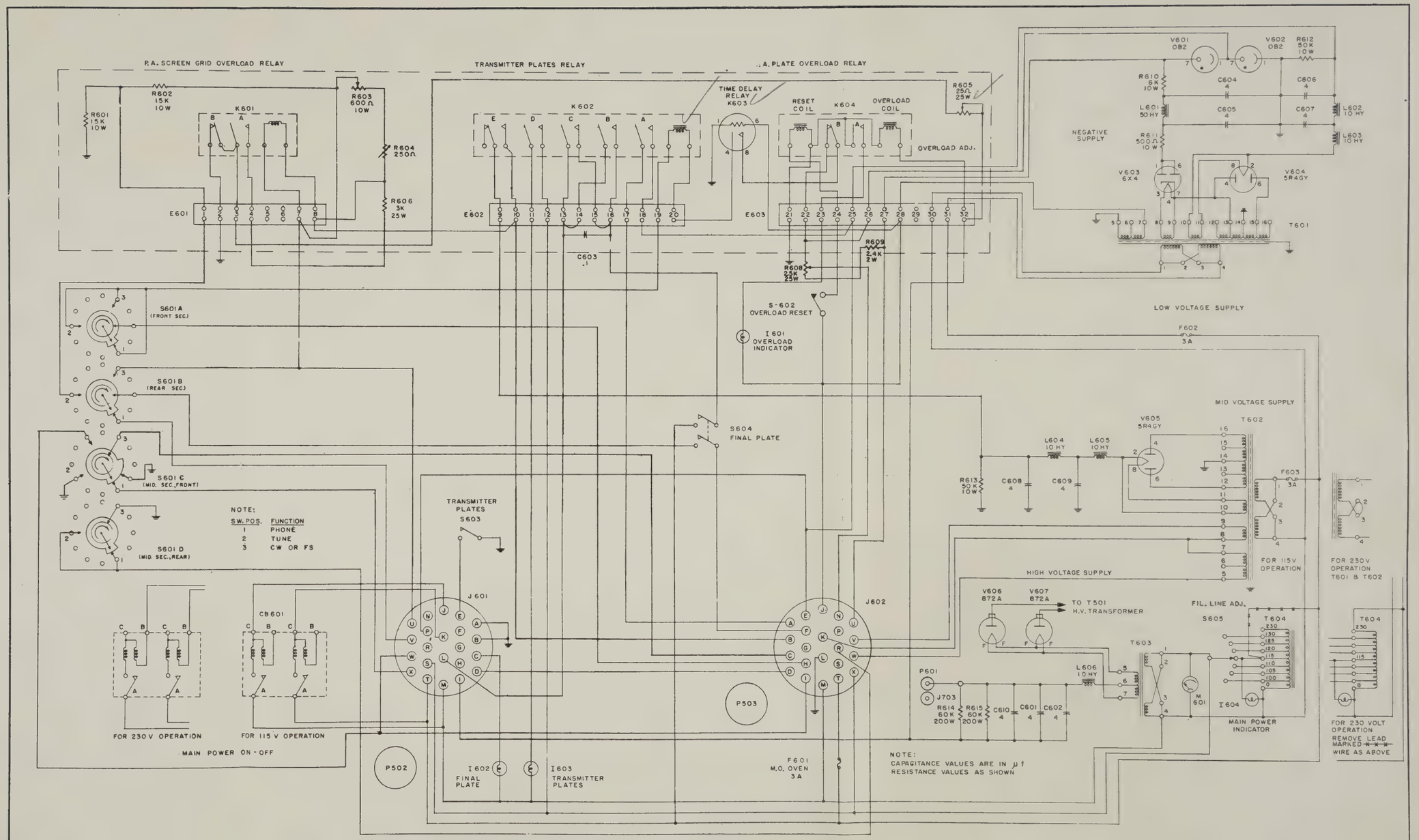
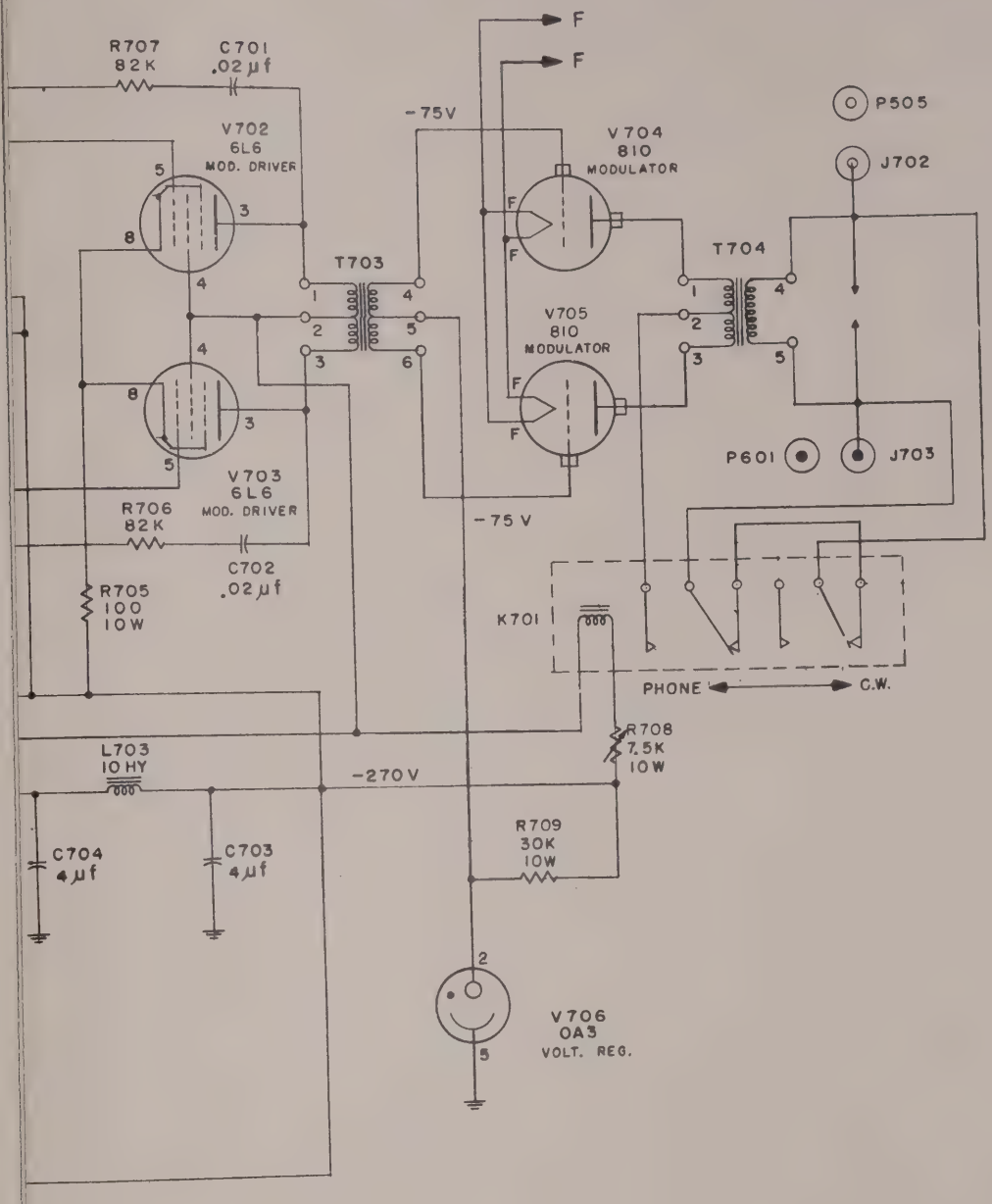


Figure 5-2a. Schematic Diagram, Model RTP.



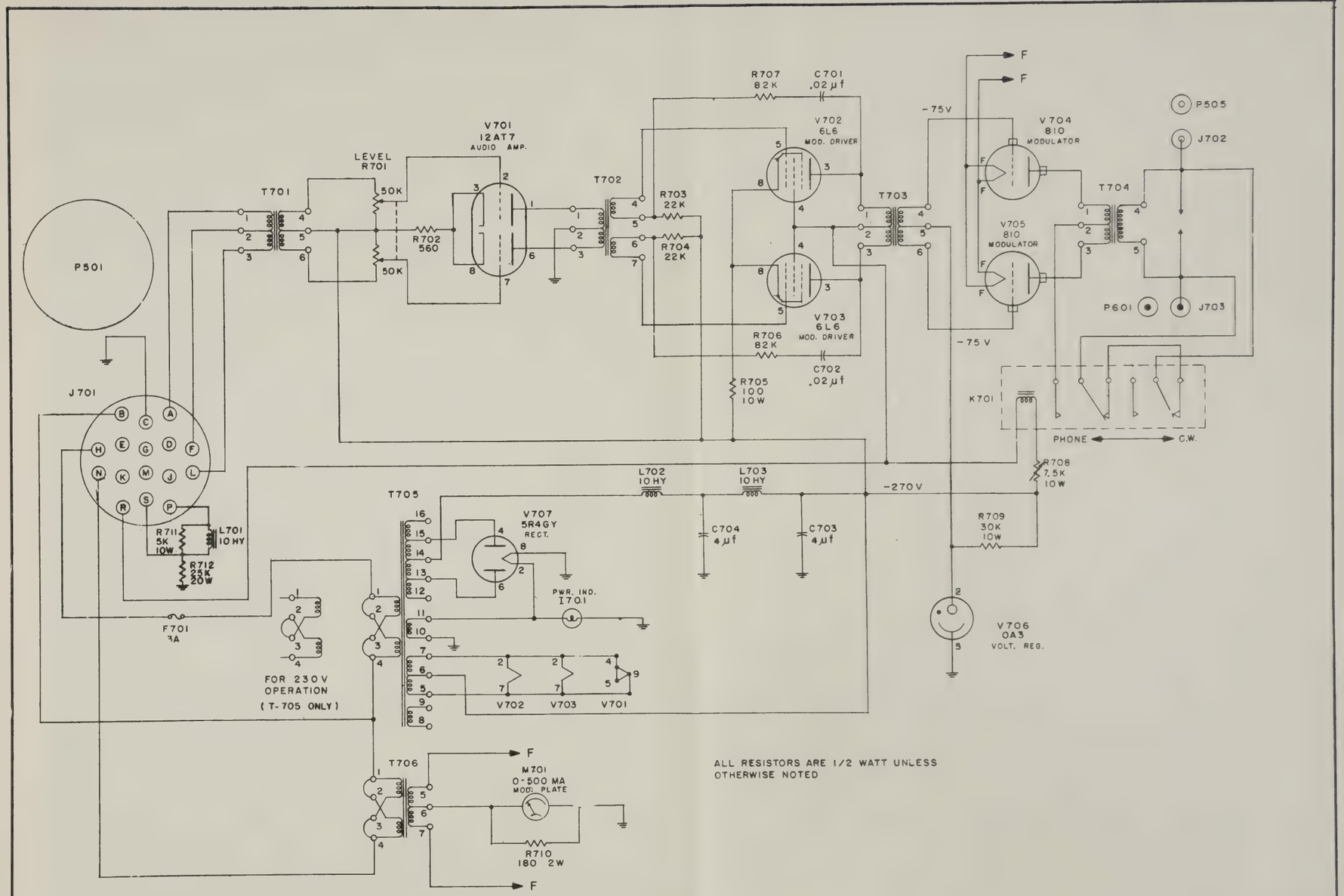
CK-314 D

Figure 5-2a. Schematic Diagram, Model RTP.



ALL RESISTORS ARE 1/2 WATT UNLESS
OTHERWISE NOTED

Figure 5-2b. Schematic Diagram, Model RTM.



CK-316 D

Figure 5-2b. Schematic Diagram, Model RTM.

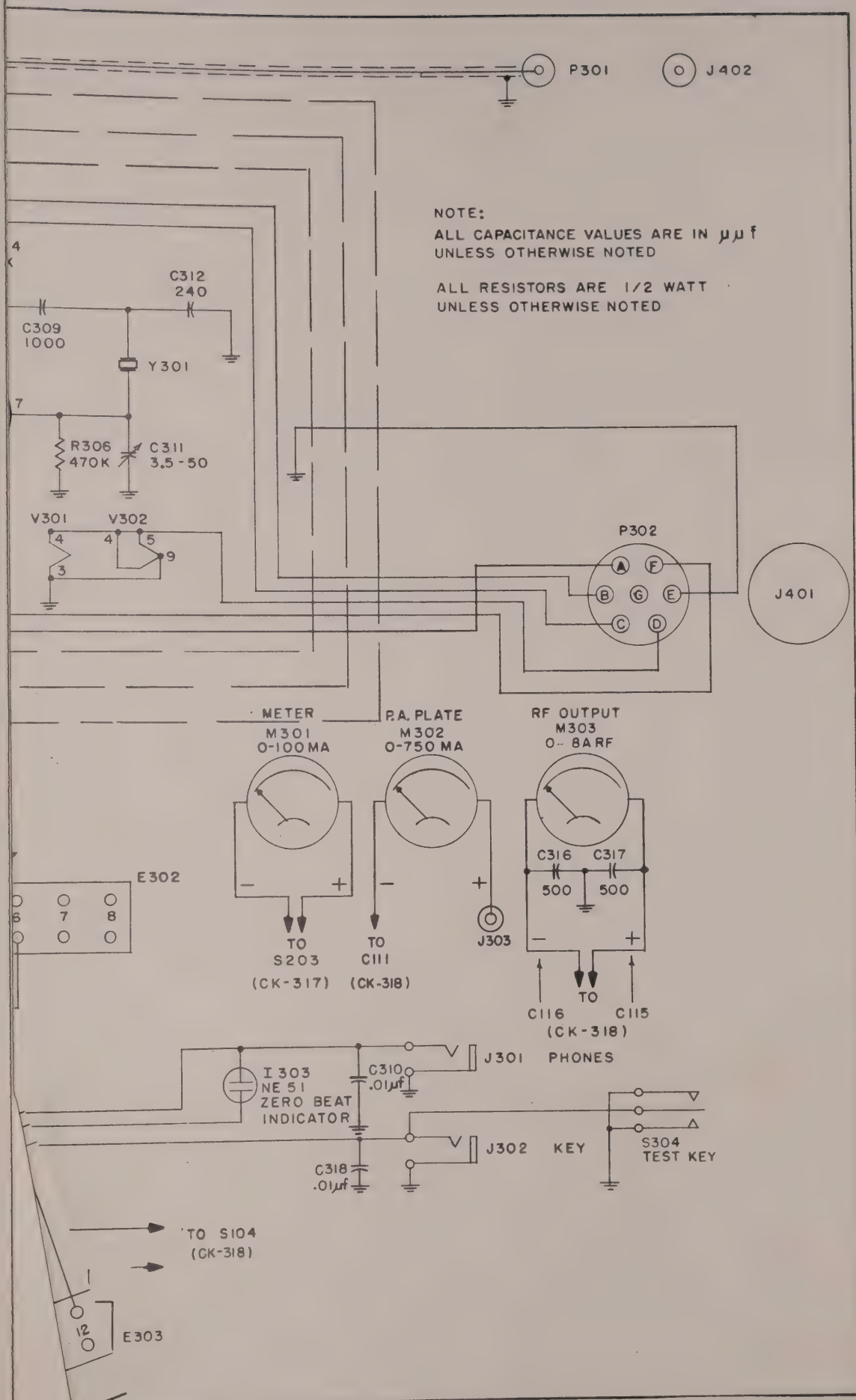
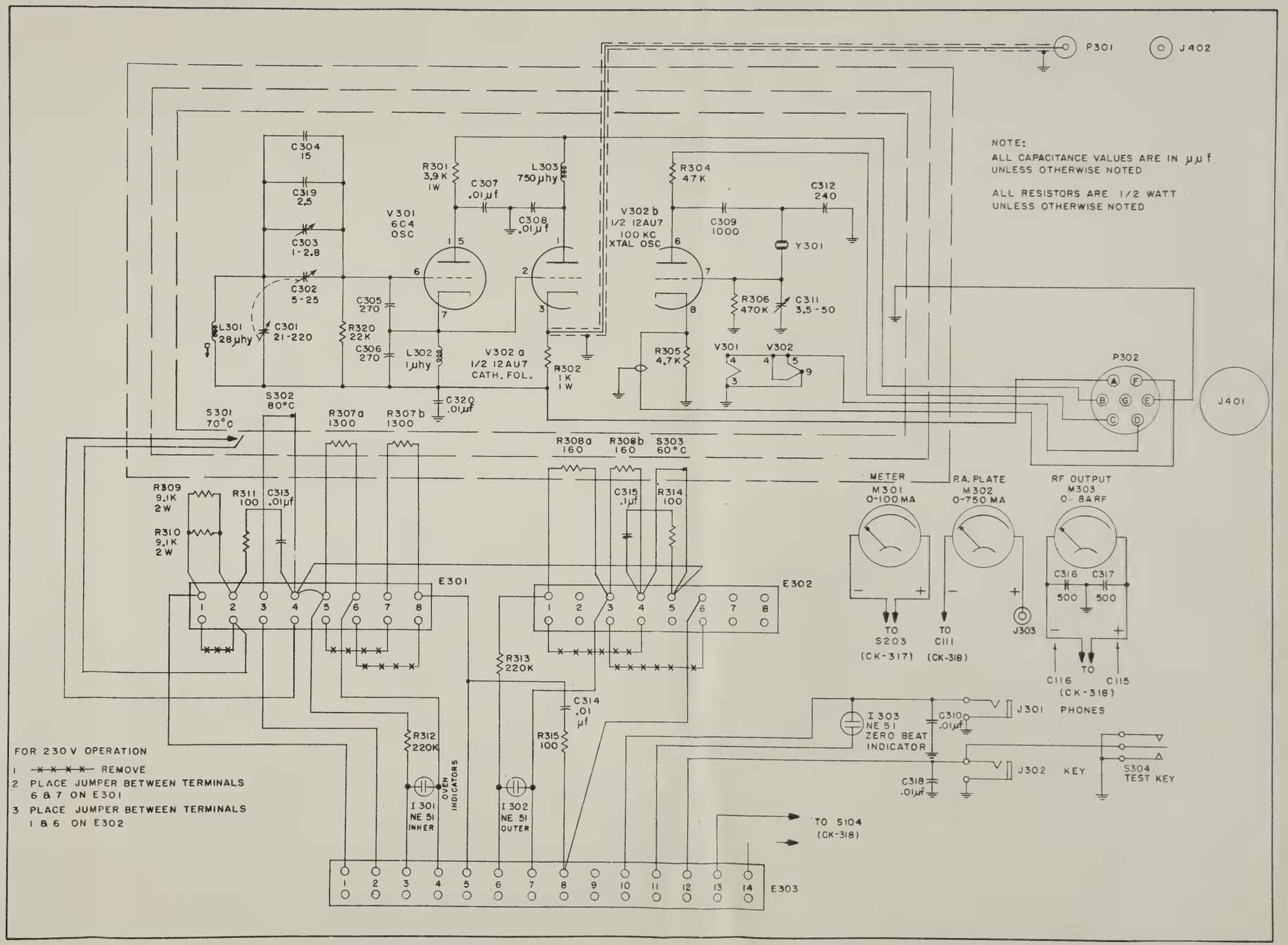


Figure 5-2c. Schematic Diagram, M.O. and Front Panel



CK-319A

Figure 5-2c. Schematic Diagram, M.O. and Front Panel

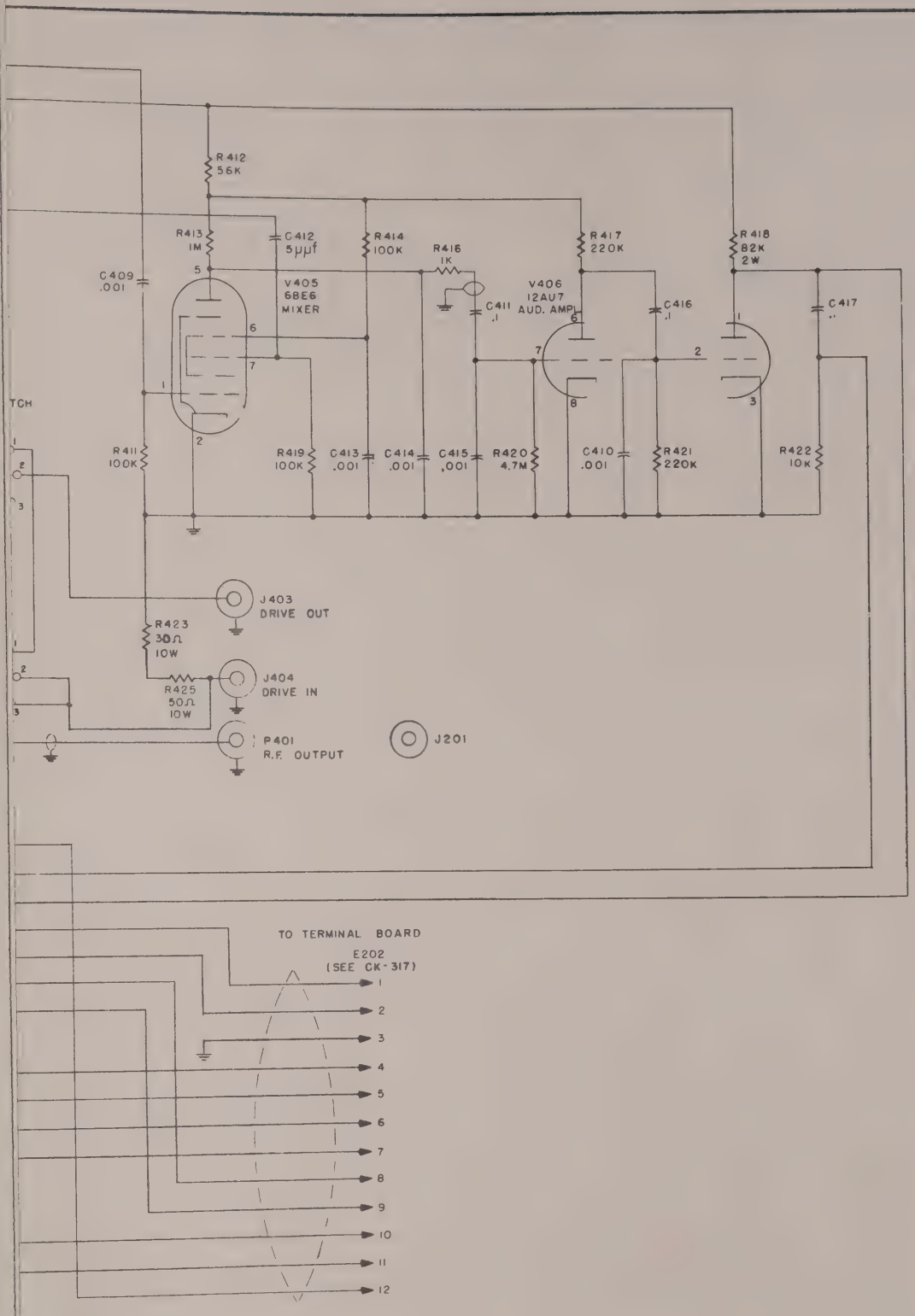
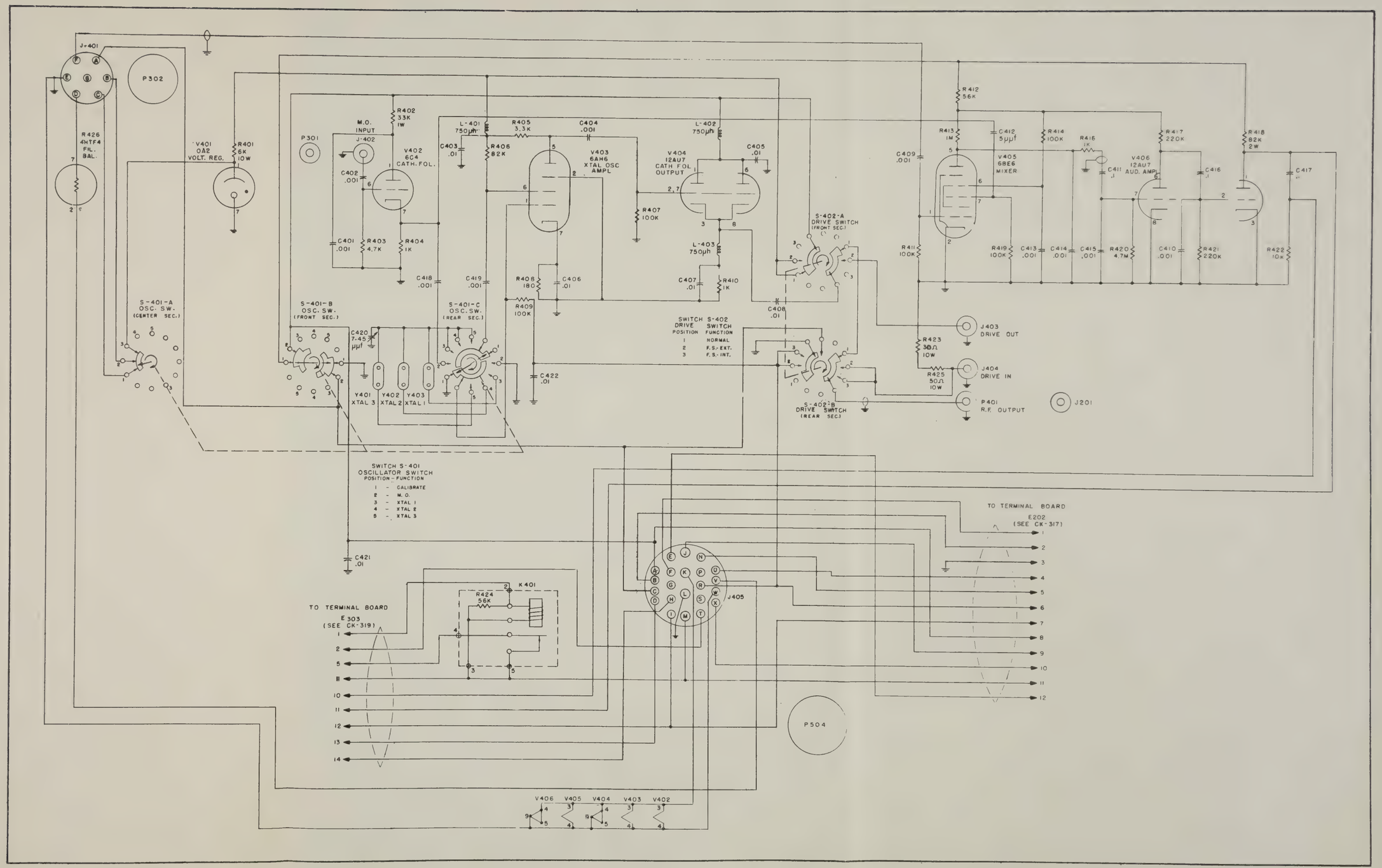


Figure 5-2d. Schematic Diagram, Interconnect Chassis.



CK-320B

Figure 5-2d. Schematic Diagram, Interconnect Chassis.

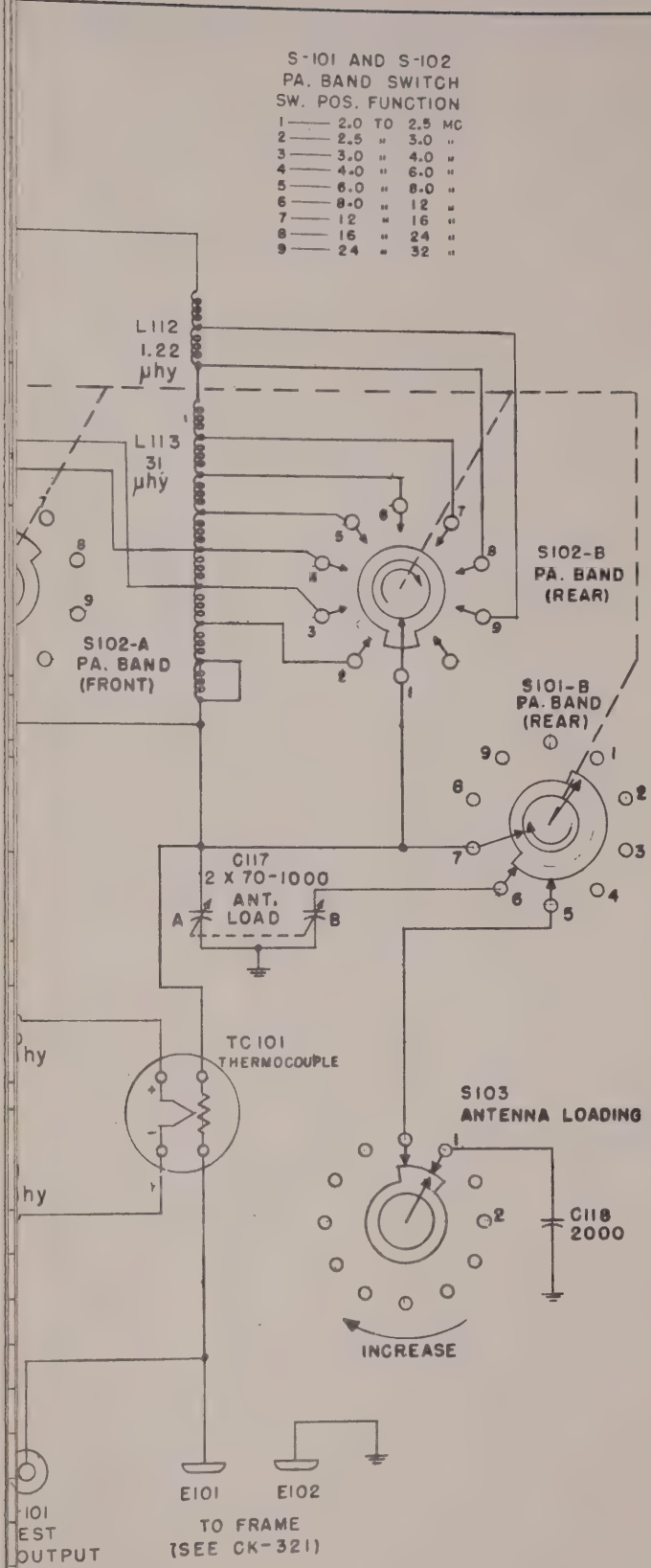
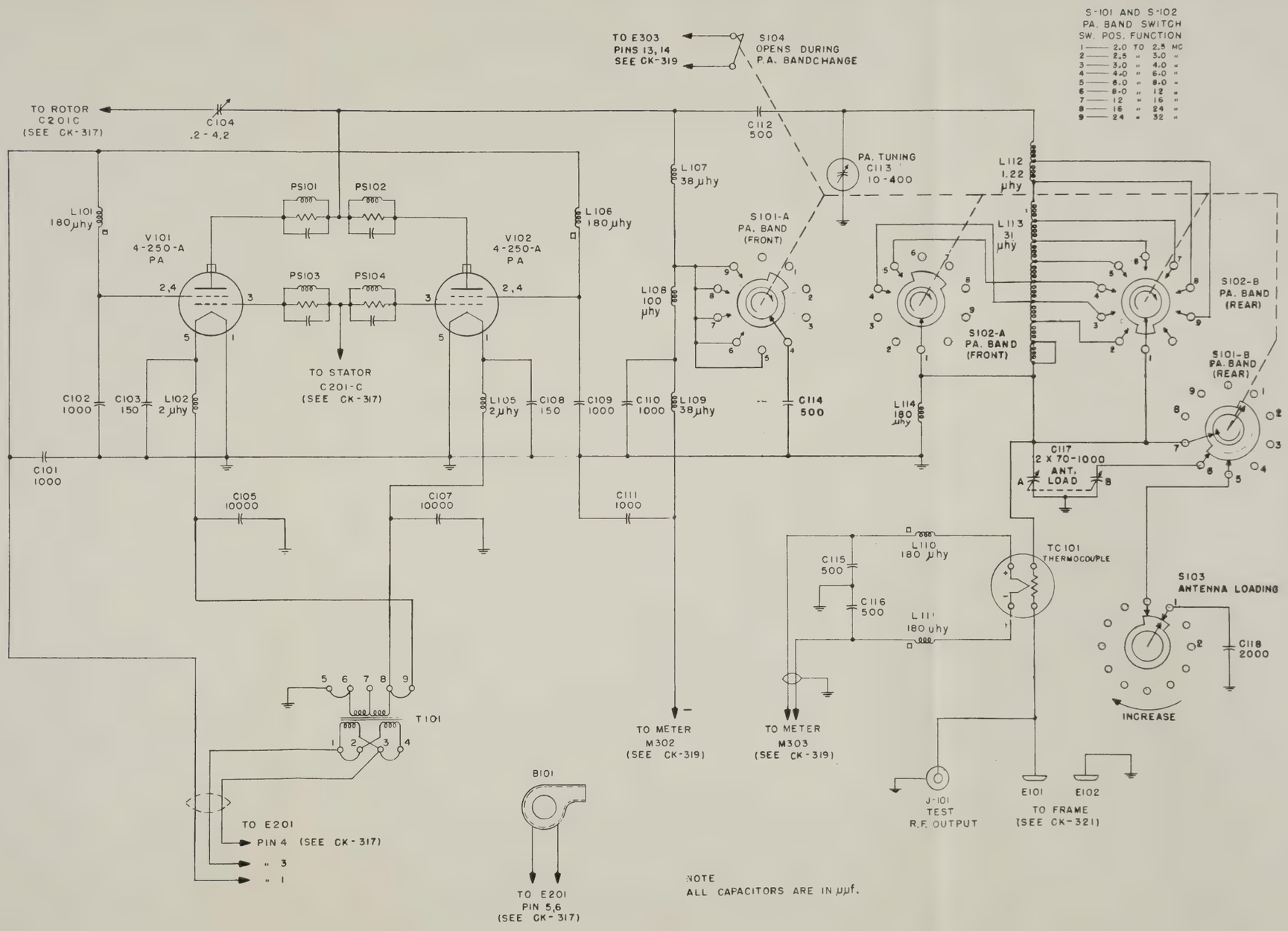
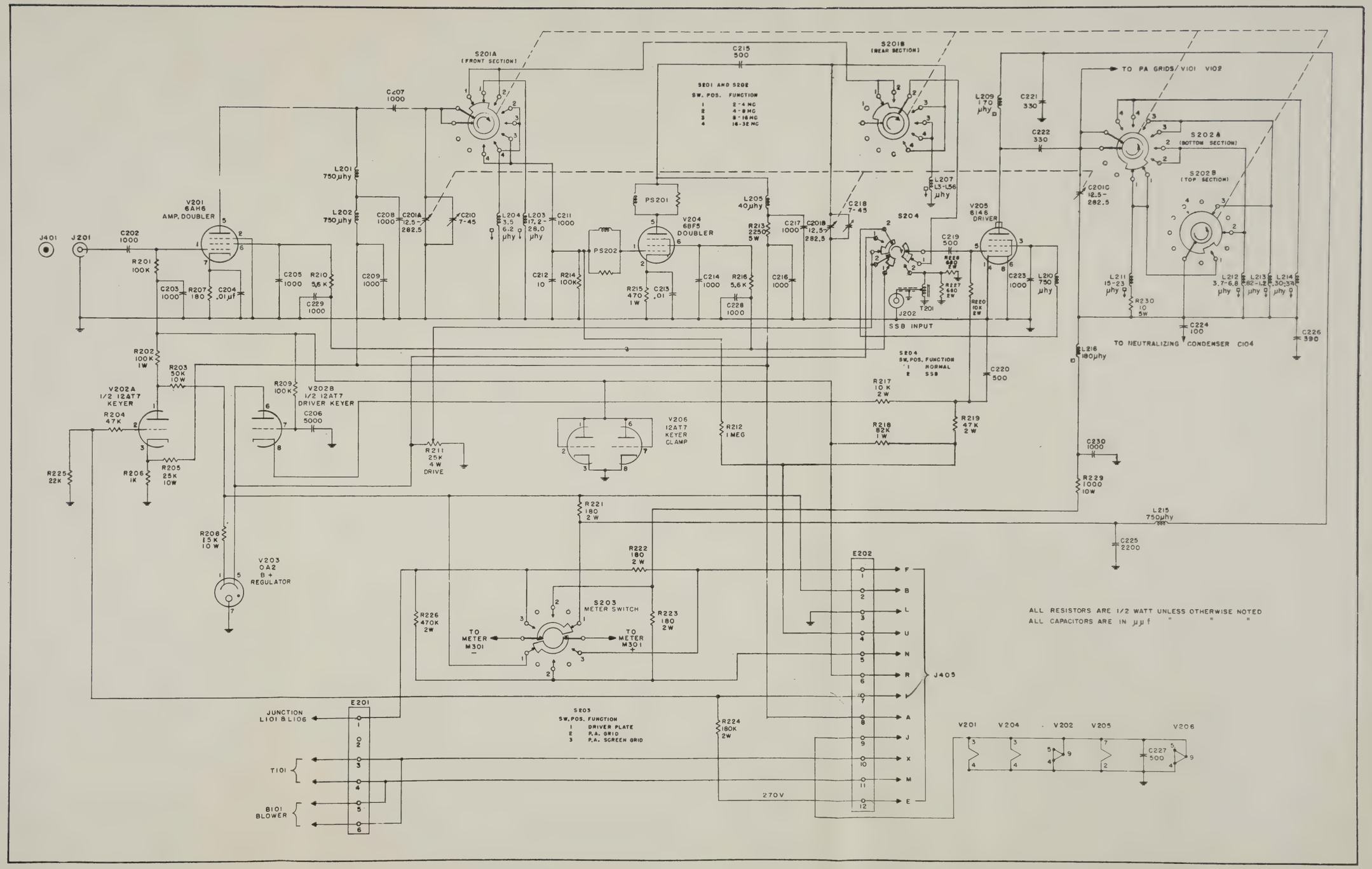


Figure 5-2f. Schematic Diagram, P.A. Chassis.



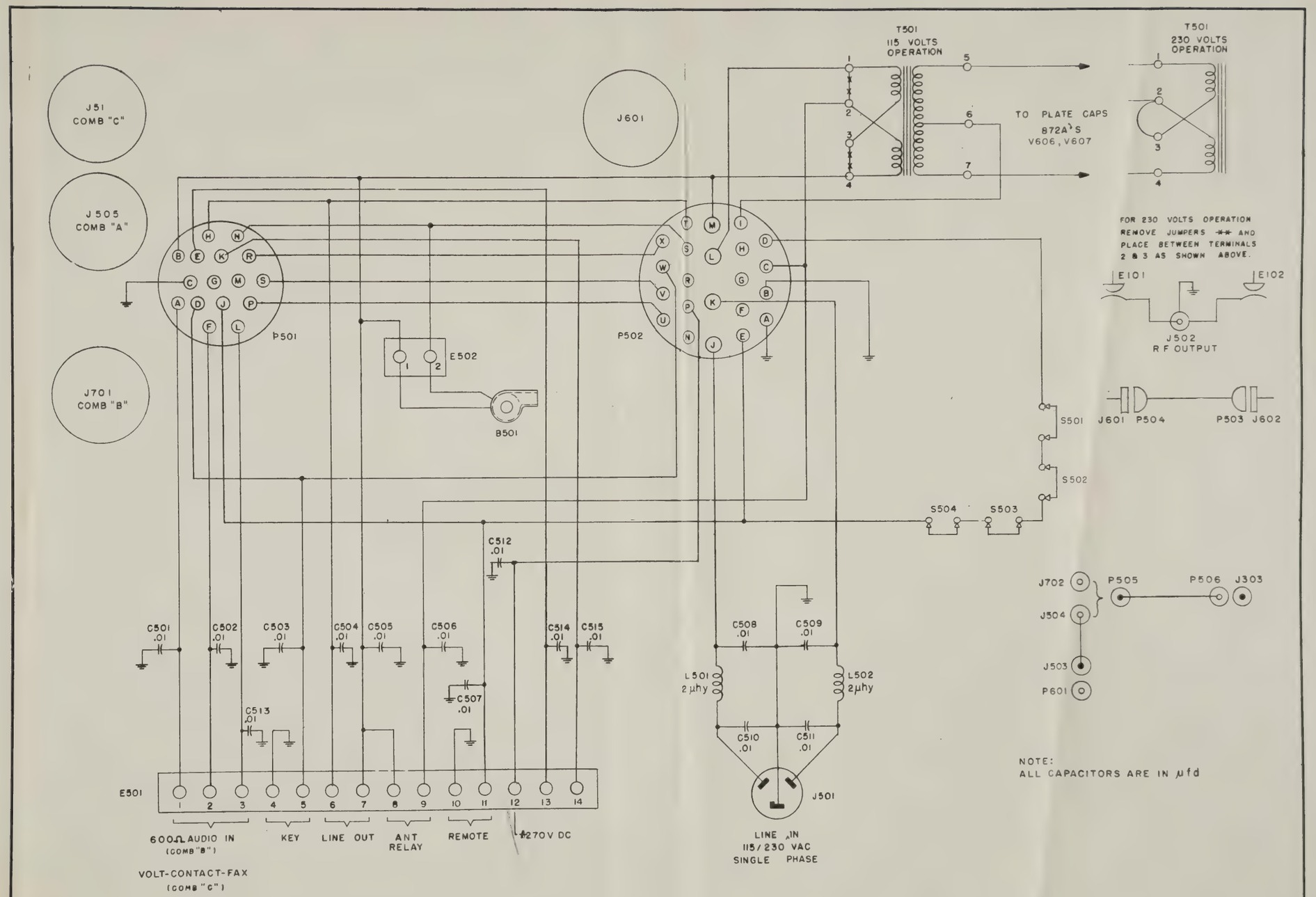
CK-318C

Figure 5-2f. Schematic Diagram, P.A. Chassis.



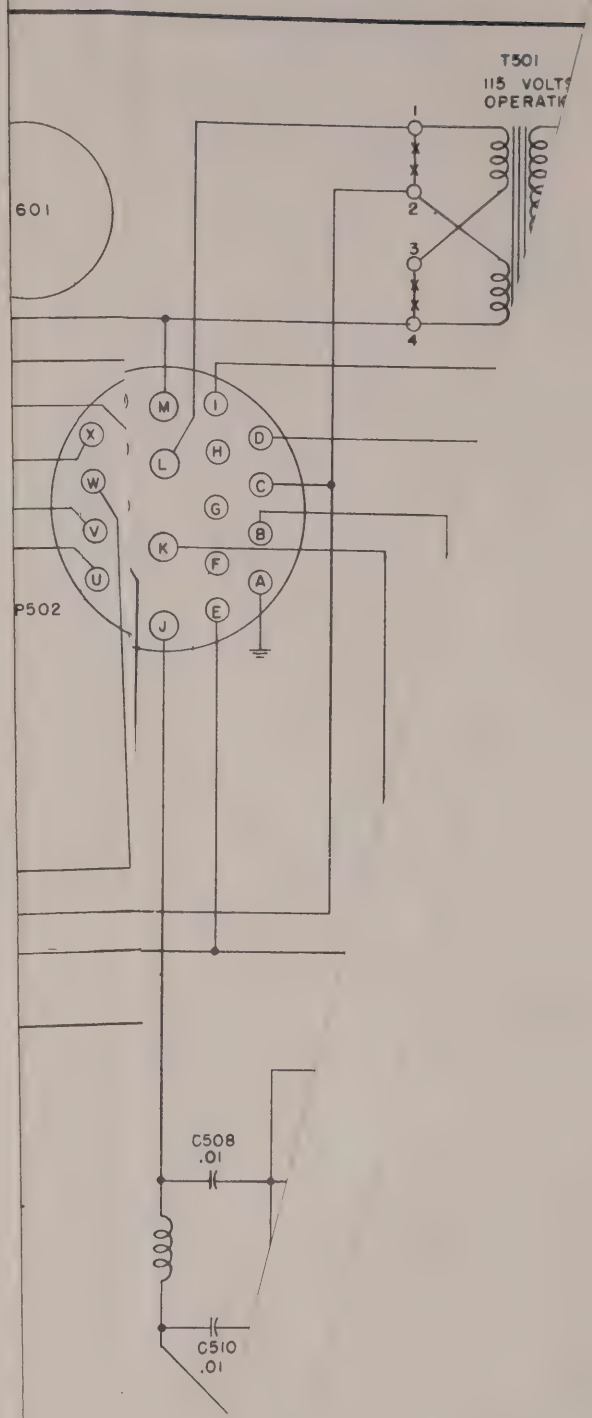
CK-317E

Figure 5-2e. Schematic Diagram, Multiplier Chassis.



CK-321C

Figure 5-2g. Schematic Diagram, Cabinet-Frame.


T501
115 VOLTS
OPERATE
1
2
3
4
601
M
I
X
L
H
D
W
G
C
V
B
K
F
A
U
E
J
P502
C508
.01
C510
.01

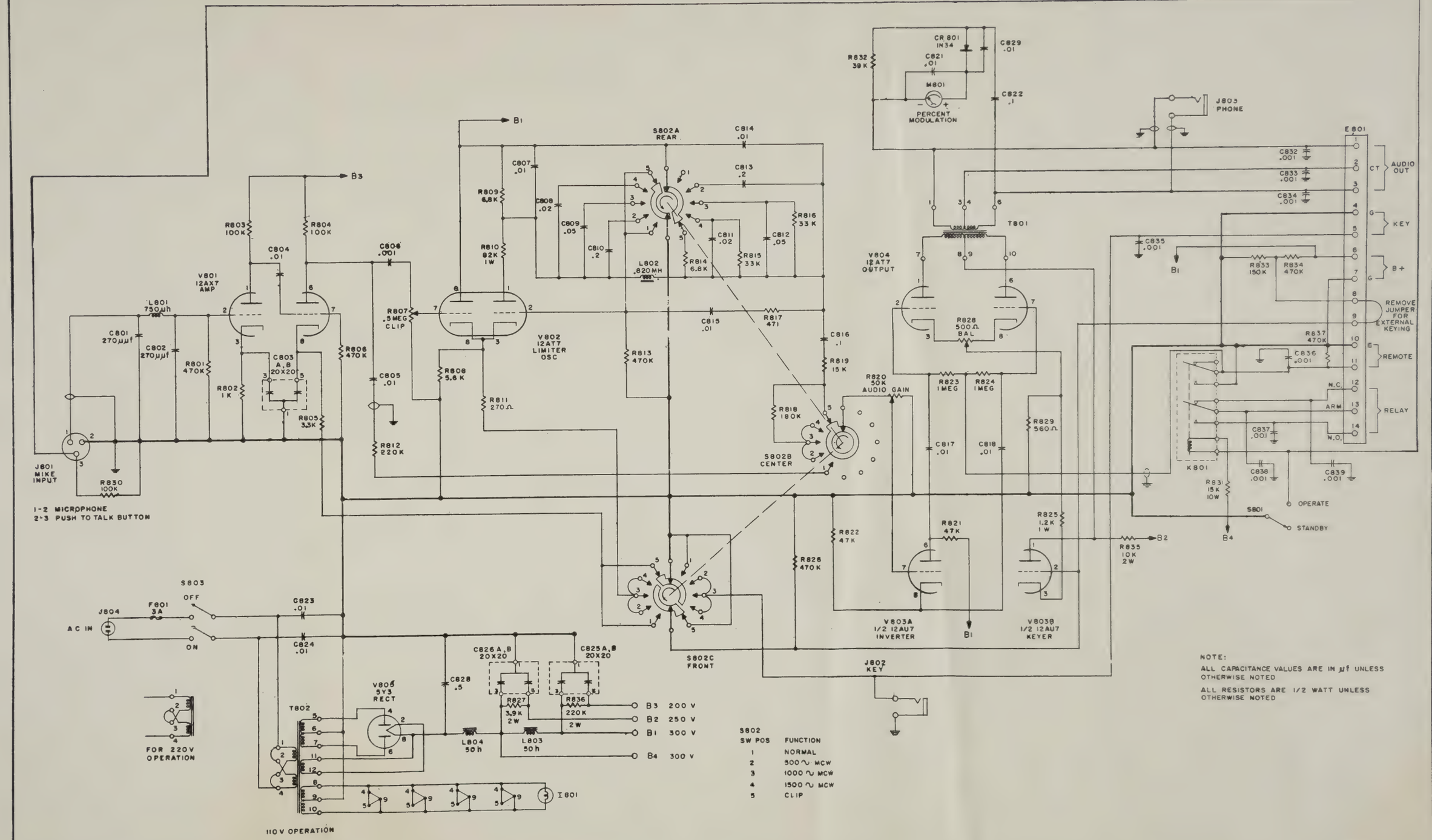


Figure 5-3 Schematic Diagram, Model RTC.